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March 10, 1969

RAILWAY AGE

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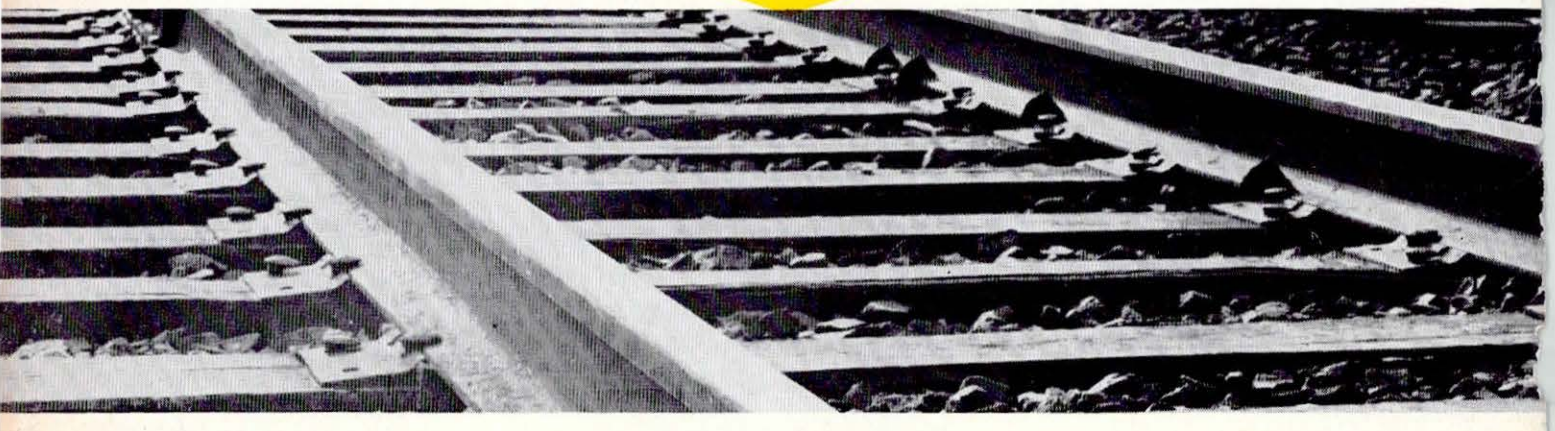

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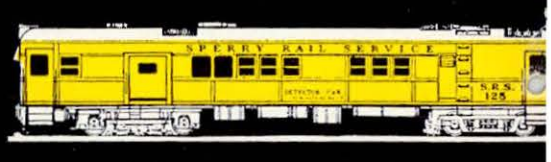

Heading into a new era: Koppers super woods and the railroads.

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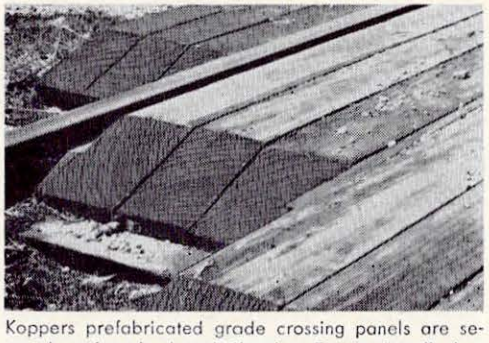

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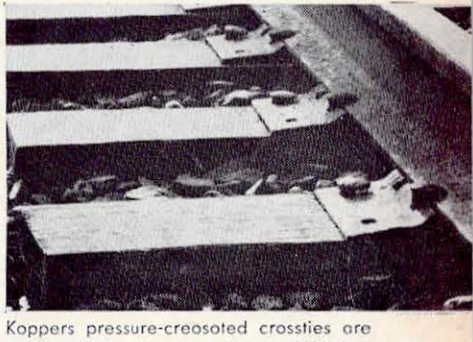

Koppers pressure-creosoted crossties are unaffected by decay or insects. Will last for years.

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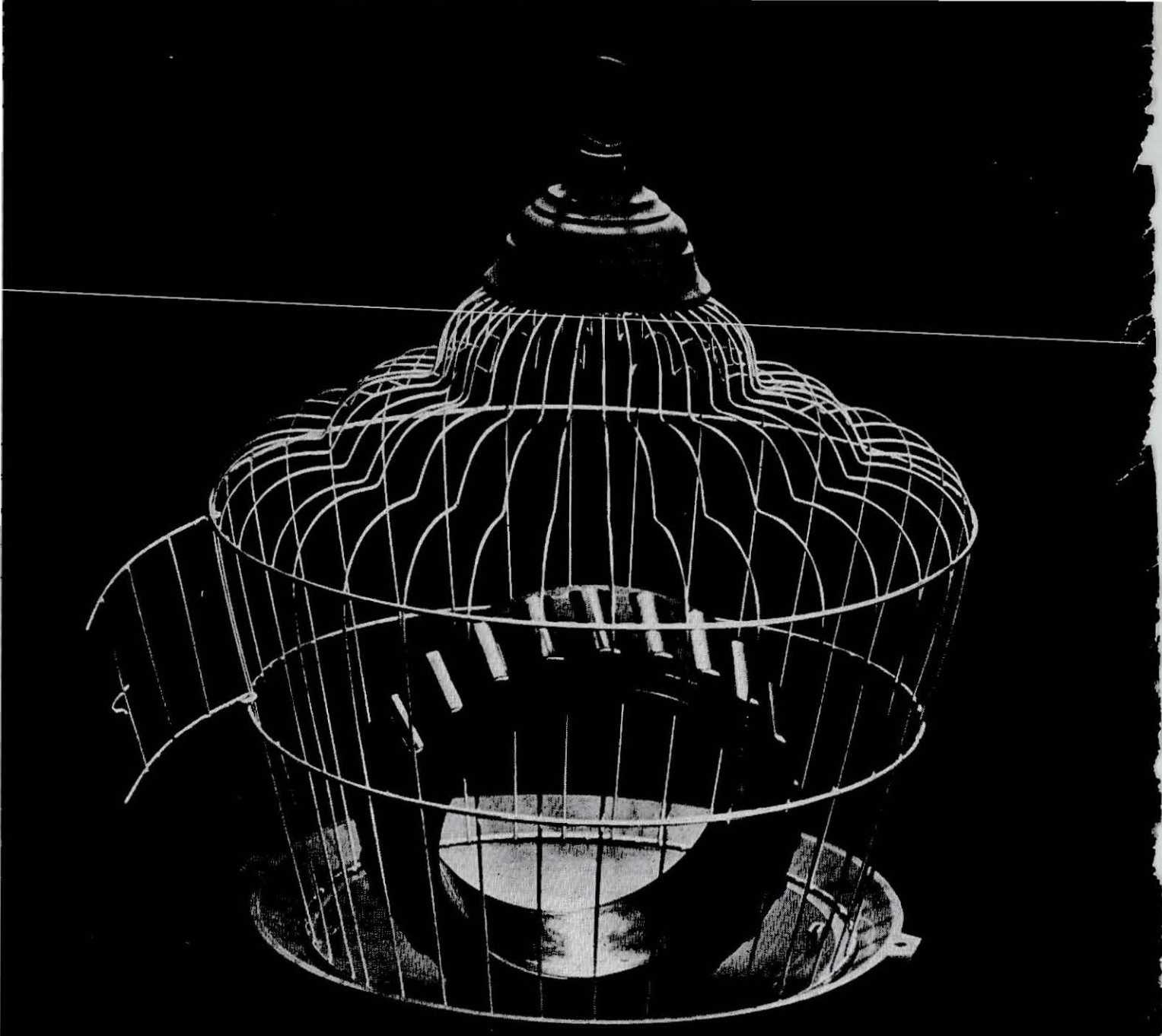

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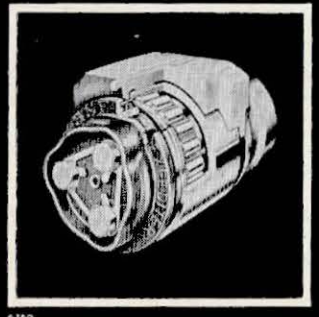

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RAILWAY AGE

March 10, 1969 • Vol. 166, No. 9

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. . . AND COMING NEXT WEEK

Tomorrow's Railroads: The vehicle and how it moves. This third section of a 12-part Golden Spike Centennial Year series will explore the possibilities for new types of train-powering, including some of the not-so-well known. It will appear in the March 17/24 issue of Railway Age (a two-in-one issue which will be mailed March 21).

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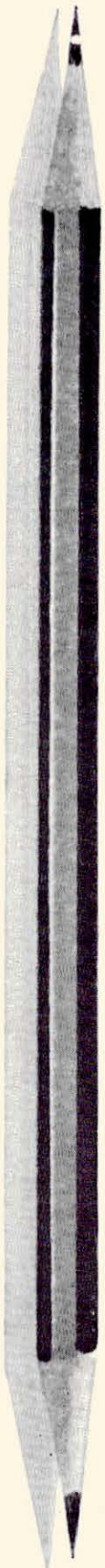

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SHORT AND SIGNIFICANT

Southern will increase M/W outlays

Southern has budgeted $76.9 million for its 1969 maintenance-of-way program, an increase of $4 million over 1968. The figure may be further increased if traffic warrants. Says Southern President Graham Claytor: "We think this is a good place to put your money when traffic is increasing. You should put all the money into track you can afford to."

CP unveils $37-million capital program

Canadian Pacific has placed orders for new locomotives and freight cars valued at $37 million *(see page 45)*. Canada's recently-contracted export coal deal with Japan is one reason for the size of the program. Among 51 locomotives to be purchased are 21 3,000-hp diesels for three special unit trains that will haul coal from Natal, B.C., to a port near Vancouver for shipment to Japan. Some of these diesels will be equipped for radio remote control of robot locomotives in the middle of the unit trains. Several will be fitted with automatic speed controls to permit loading or unloading operations at slow speeds.

Rio Grande's CSS operation keeps growing

Computer Sharing Services, Rio Grande's first major non-transport diversification, now has 65 clients—and it's getting a full-time boss. CSS was set up under William J. Day, who served simultaneously as the railroad's director of management information. Now, he becomes president of CSS. Included on the time-sharing service's client list are engineers, manufacturing firms, accountants, mining and mineral exploration companies, real estate and advertising agencies and educational enterprises (RA, Jan. 1/8, 1968, p. 27).

Subsidiaries hike Penn Central net by $44 million

Nearly half of Penn Central's consolidated net income for 1968 was contributed by the parent company's four real estate and pipeline subsidiaries, according to Penn Central chairman Stuart T. Saunders. The subsidiaries—Macco Corp., Arvida Corp., Great Southwest Corp., and Buckeye Pipeline Co.—accounted for $44,203-000 of Penn Central's net income of $90,-273,000, Saunders said, after provision for minority interests and federal income taxes. PC owns 80% of Great Southwest, 60% of Arvida, and all of Buckeye and Macco. Arvida increased its after-tax earnings from $1,060,000 in 1967 to $2,435,000 in 1968; Macco, from $7,566,000 to $21,-021,000; Buckeye, from $13,604,000 to $13,812,000; and Great Southwest, from $5,014,000 to $15,249,000.

Canadian truckers will test triple bottoms

Triple-trailer highway rigs 95 feet long will be tested in Alberta in July. Implementation of the triple-bottom concept would require liberalization of size and weight limits by provincial authorities. Most provinces now have a length limit of 65 feet. In Ontario, the limit is 60 feet.

L&N graduates new group of engineers

Louisville & Nashville's pioneering locomotive-engineer apprenticeship program has hit another milestone. Graduation ceremonies for five new engineers at East St. Louis, Ill., bring to 150 the number of men who have gone through the course since its beginning in April 1966. All five graduates in the latest class were formerly switchmen.

Falley merges with tank-car subsidiaries

Falley Petroleum Co., a subsidiary of Nationwide Industries, Inc., has merged with its four wholly owned tank-car companies to form the new Falley Corp. The former subsidiaries were Gas Liquids, Inc.; Petroleum Gas Co.; Jumbo Transportation Co.; and Great Lakes Propane Co. Falley President David C. Falley said the merger, among other things, would "facilitate plans to expand the scope of our activities in the tank-car leasing field."

MONDAY MORNING REPORT

UNIT TRAIN SERVICE FOR COFC?

When shippers ask for examples of railroad innovation in the movement of goods, the industry invariably points to the development of unit trains and piggyback service. Shuttling permanently coupled cars loaded with bulk goods between two points has enabled railroads to improve service and car utilization simultaneously. The use of piggyback has enabled the industry to attract and hold traffic that otherwise would have been lost to other modes. All in all, the two types of service have been a boon over the past decade, and the next step—in the view of one distribution executive—is to combine them.

THE EXPERIMENT IS BEING PLANNED

The D. H. Overmyer Co., largest warehouse operator in the country, plans to establish intermodal container terminals in more than a dozen major cities to serve containerized unit trains. The trains could carry as much as 200 million tons annually, according to Daniel H. Overmyer, president of the company. "This means that there will be 80,000 unit train movements at a bare minimum," Overmyer told the Greater Colorado Chapter of the National Defense Transportation Assn. "Between New York and Detroit, there is enough (traffic) for 11 round-trip unit trains a week. . ."

UNIT COFC TRAINS COULD RUN DAILY BETWEEN MAJOR CITIES

The terminals themselves, as Overmyer describes them, would be the last word in modern warehouse facilities. "A fundamental purpose of the intermodal container terminals . . ." Overmyer says "would be to generate enough traffic through consolidation [of LCL lots] to sustain scheduled unit trains between appropriate points first on a bi-weekly and later on a daily basis. . ."

COST REDUCTIONS PROJECTED AT 40%

The management consulting firm A. T. Kearney has said the new service could save about 40% of current transportation cost. While that figure is impressive, so is the cost of establishing the service: To build 15 terminals would cost $200 million initially, according to Overmyer, and "ultimately a billion dollars." But the decision to proceed with the new system seems to have been made. "The logic of our plans," says Overmyer, "seems to me to be irresistible."

WEEK AT A GLANCE

Penn Central goes to Canada to get new vice president

James A. McDonald, vice president-production of the Canadian National, will become vice president-systems development of the Penn Central in a major executive realignment approved by PC directors.

McDonald will succeed Robert G. Flannery, who will become vice president-operation. David E. Smucker, formerly vice president, operations, of the Pennsylvania, who became executive vice president of Penn Central at the time of the merger last year, is being reassigned to the staff of the board chairman. He will serve as executive vice president of the proposed parent holding company, which is to be submitted to stockholders for a vote May 13. Chairman Stuart T. Saunders said the executive changes were designed "to prepare management of the Penn Central Company for operating as a holding company and to strengthen administration of its railroad system."

Court may hear BN merger case in current term

The Supreme Court may hear Justice Department objections to the merger of the Great Northern, Northern Pacific and Burlington in the current term, rather than next fall.

The Court last month said it would hear Justice's objections, and only the granting of an expedited hearing would prevent a delay until the fall term. Last week, the three roads and the Interstate Commerce Commission, which has approved the Burlington Northern merger, requested the expedited hearing. A Court spokesman said the chances are good the request will be granted.

Railroad earnings in '68 surpass earlier estimates

Railroads' combined ordinary income in 1968 totaled $593 million, $18 million more than preliminary estimates, according to the Association of American Railroads. The 1968 figure represents a gain of 7.7% over the $561 million reported in 1967, the AAR said, but was still 34% below the $904 million reported in 1966.

Both net railway operating income and the rate of return on investment for 1968 were below the earlier, estimated figures. Operating income, estimated at $725 million, was actually $681 million. Return on investment, estimated at 2.60%, was actually 2.45%.

Operating income rose by $3 million,, or .4%, over 1967. Return on investment declined slightly from the 1967 rate of 2.46%, which in turn represented a sharp decline from the 1966 rate of 3.90%.

Operating revenues in 1968 set a record — $10.855 billion — attributed partly to freight rate increases. The figure, slightly higher than the estimated total of $10.840 billion, represented a gain of 4.6% over 1967.

Actual operating expenses were $8.578 billion, higher than the estimate of $8.515 billion and an increase of 4.5% over the 1967 total.

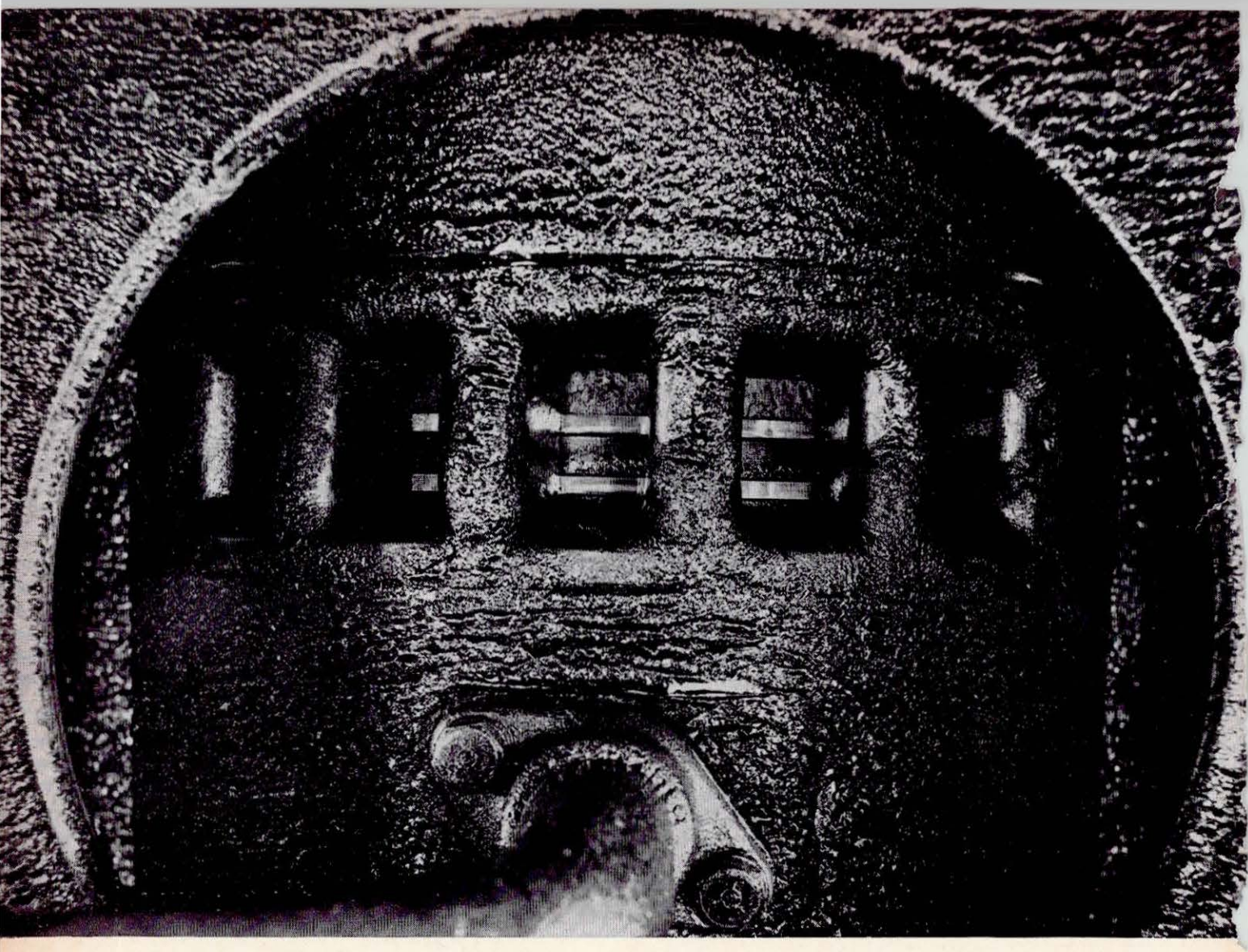
The AAR said 19 of the industry's 76 Class I railroads reported deficits in 1968. Of the total, 15 roads were in the Eastern District and four in the Western District.

CLASS I RAILROADS IN THE UNITED STATES

FOR THE CALENDAR YEAR

	1968 (millions)	1967* (millions)		Percent increase
Operating revenues	$10,855	$10,376		4.6
Operating expenses	8,578	8,211		4.5
Tax accruals	946	911		3.8
Rents (net debit)	650	576		12.8
Net railway operating income	681	678		.4
Rate of return	2.45%	2.46%		—
Ordinary income:**				
United States	$593	$551		7.7
Eastern District	91	90		1.1
Southern District	117	127	d	7.9
Western District	385	334		15.3

*Restated.
**Net income before extraordinary and prior period items.
d—Decrease



"This engine's fairly clean."

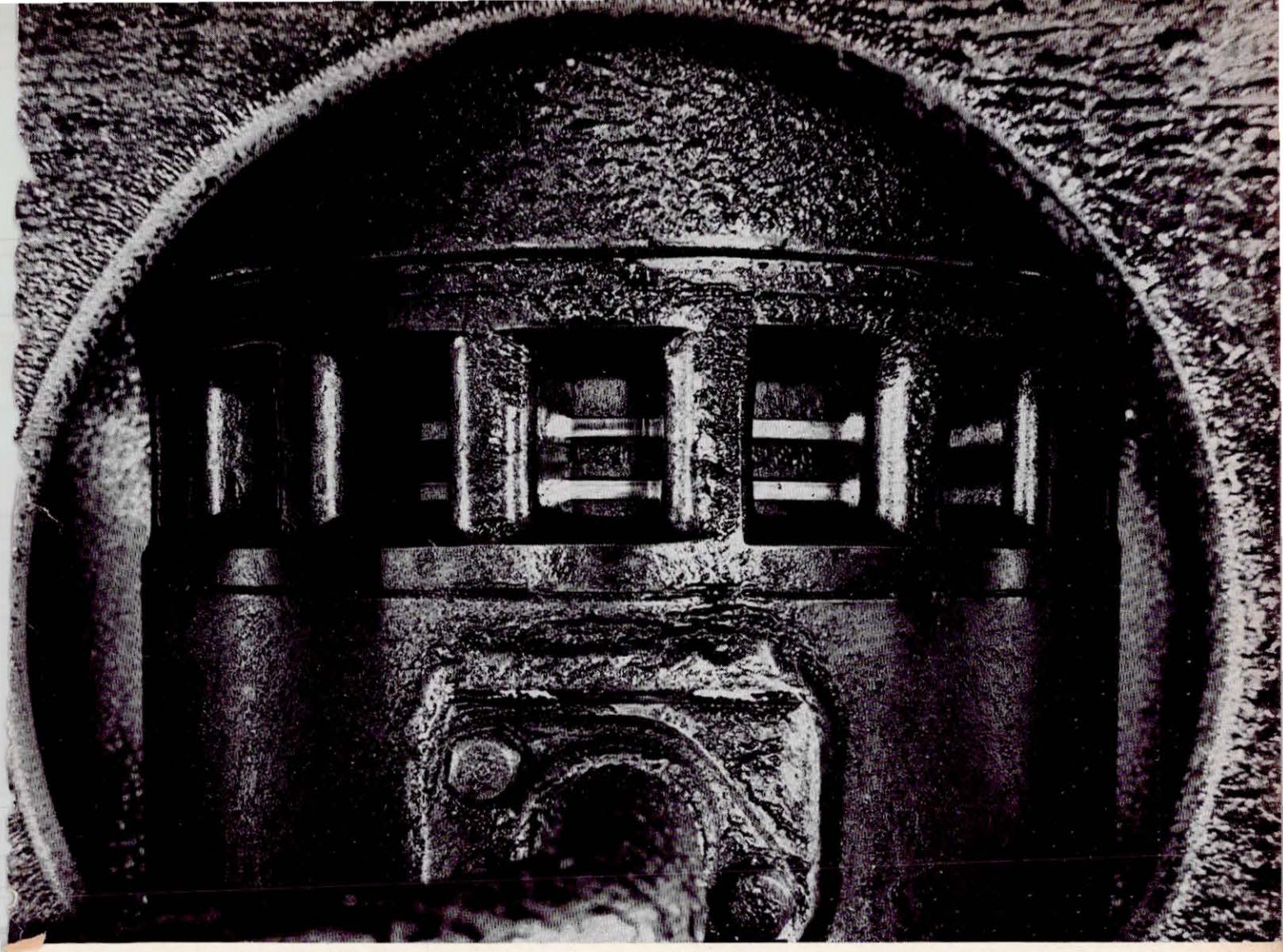
You're looking through the No. 3 cylinder air box inspection covers of identical EMD SD-40 engines in comparable service on the Western Maryland Railroad. Photo above, *left*, shows engine condition after 93,847 miles since factory delivery on the most widely used conventional oil. Photo above, *right*, shows condition after 94,360 miles since factory delivery on high-dispersant Shell TORNUS ™ Oil. Look at the difference.

But there's more to high-dispersant oils than cleanliness, according to authorities of the Western Maryland.

What really counts. "We've got over 40 critical units on TORNUS Oil," explains a spokesman. "Including the newest and the oldest, all in drag freight.

"The use of superior high-dispersant oils has allowed us to extend our overhaul cycle from four to six years. We're on a 14-year depreciation basis, so we eliminate that third overhaul—eliminate an 18-day outage—and save at least $25,000 in overhaul costs alone.

"Sure, high-dispersant oils keep an engine clean. For example, our units on TORNUS no longer get an oil cooler cleaning between overhauls. But cleanliness alone wouldn't have let us extend our overhaul cycle.



"This one's $25,000 cleaner."

"What really counts is power utilization. And that's what TORNUS gives us."

"We've eliminated engine failure caused by water. Water leakage used to mean one thing—drop the bearing caps and inspect for damage. Likely as not, we were faced with a major overhaul.

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GUS WELTY

LINES ON LABOR

THIS IS THE AGE for telling it like it is, as the kids say. And it was this laudable goal which AAR Vice President Rex R. Manion was pursuing a few days ago in an unlikely place called Oglebay Park in Wheeling, W. Va. Manion was the industry's spokesman at a United Transportation Union seminar—one of a series which UTU will be holding across the country, now that four operating unions have become one under the UTU banner. Manion told quite a bit of it like it is—emphasizing the positive, but not neglecting the negative in assessing the industry, present and future.

MANION TALKED about the traffic-building which new technology and new marketing techniques have made possible. He talked about the need for labor's support of certain industry legislative goals, including passenger-service indemnification and one-package transportation. And he had a few sobering comments regarding rail costs and how they affect the railroads' competitive capability.

LABOR COSTS, he pointed out, ate up 54 cents of every revenue dollar last year. Labor costs, he noted, accounted for 68 cents of every operating-expense dollar. His conclusion was inevitable: "Any attempt to reduce operating expenses must necessarily concern itself with a reduction in labor costs."

SO HOW CAN COSTS BE CUT? Obviously, said Manion, "cutting pay and benefits is not the way we want to reduce the labor part of unit costs. Nor do we want to engage in wholesale job terminations. That leaves open only one major avenue: Handle more business per job, as new technology and equipment make this possible."

TRANSPORTATION DEMAND will grow, Manion reminded these UTU members at Wheeling. And the railroads will be going after this business "just as hard as we possibly can, using every resource at our command. If we can improve our efficiency, provide better service and keep our costs in line, we stand an excellent chance of capturing our full share. If we are successful in this—and I have no doubt we will be if we all work in harness—the result will be additional employees, not fewer. And there will be better security for all of them."

THIS IS NOT THE FIRST TIME that union members have been told about what lies ahead, "if," nor will it be the last. But the hope can only be that all concerned—union leaders, the rank-and-file and rail management itself—listen, and act accordingly.

ICC cites need for policy decisions in annual report

The new chairman of the Interstate Commerce Commission, Virginia Mae Brown, has stated publicly that one of her major concerns will be ICC independence in the face of a growing role in policy for the Transportation Department. At issue is the Commission's power to set transportation policy in addition to regulating the activities of the rail, motor and water carriers under its jurisdiction. The 82nd ICC annual report (for fiscal year ending June 30, 1968) gives a picture of policy-making already attempted.

At the start of fiscal 1968, there were 6,108 cases awaiting ICC judgment. At the end of fiscal 1968, there were 5,264—a reduction of 844. Battling to gain that 13% decrease, the Commission found itself immersed in "unusually complex cases," involving the big rail mergers, general rate increases, intermodal competition, the small-shipments problem and passenger-train discontinuances.

As the issues became more complex, the ICC realized that basic policy statements were needed, the report says.

One concern, the Commission says, was the shift from the "buyer's market" that shippers had enjoyed for a long time because of overabundant carrier capacity.

"In these situations and in those instances where carriers lowered rates to obtain traffic, especially in an intermodal context, cost finding standards became increasingly significant and the Commission devoted extensive attention to development of such policies."

The best-known intermodal cost case was Ingot Molds, in which the Supreme Court rejected a rail contention that out-of-pocket costs should be the comparative basis for determining a mode's inherent cost advantage. The railroads had challenged the Commission practice of comparing fully-distributed costs. Although that case is settled, the question of out-of-pocket versus fully-distributed costs isn't. The Commission has re-opened hearings in a case covering cost-evidence in general (RA, Feb. 24, p. 7).

Another area for ICC policy drafting is the small-shipments issue. Development of adequate small-shipment service is "one of the most perplexing issues facing both the Commission and the transportation industry," the report says.

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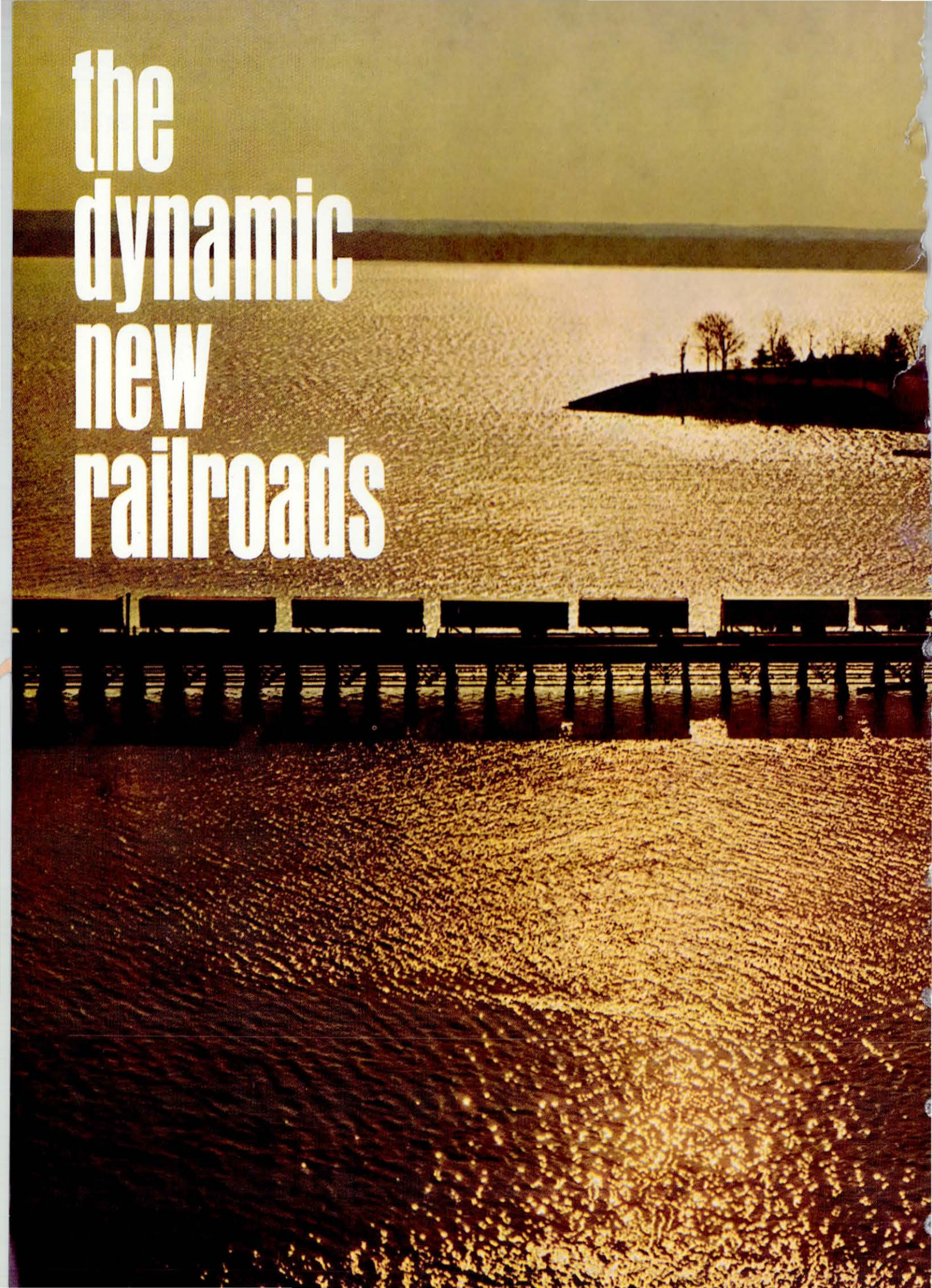
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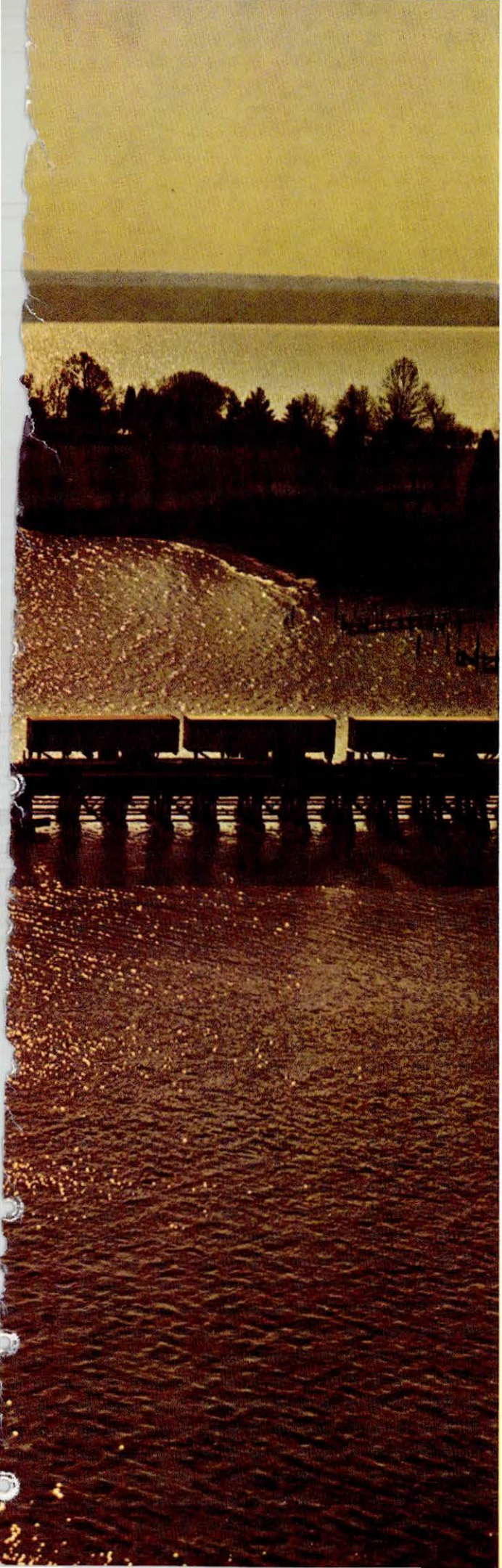
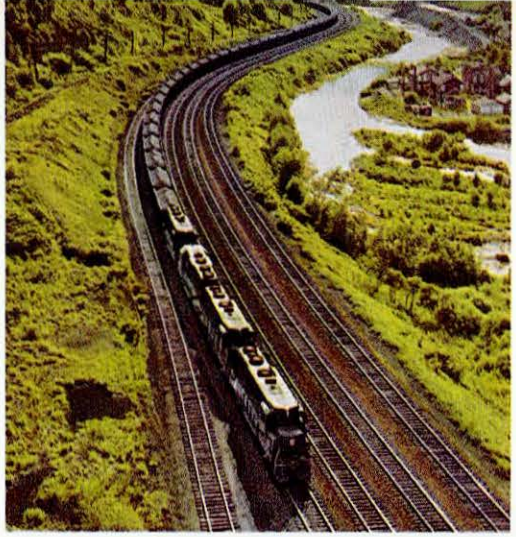
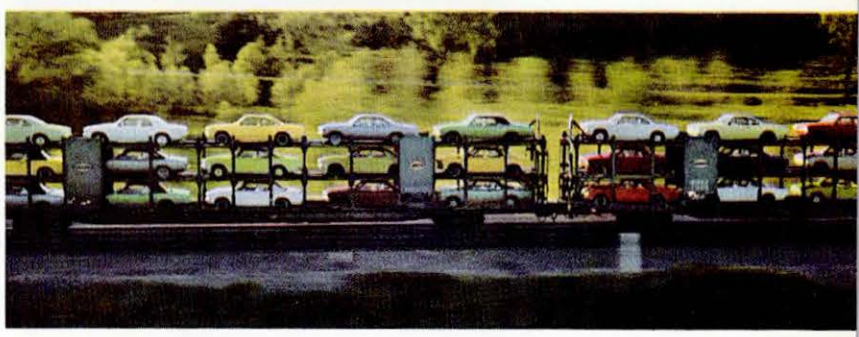




Steel for Strength



Quietly... a spectacular revolution on the rails

It almost seems as though someone had invented the railroads all over again! Just look . . .

A decade ago, trucks were still winning freight away from the rails. Enter piggyback . . . and now the railroads are carrying the trucks.

A decade ago, coal (the railroads' biggest single commodity) was switching to pipeline transportation. The railroads developed the unit train. . . . . now coal is riding the rails again.

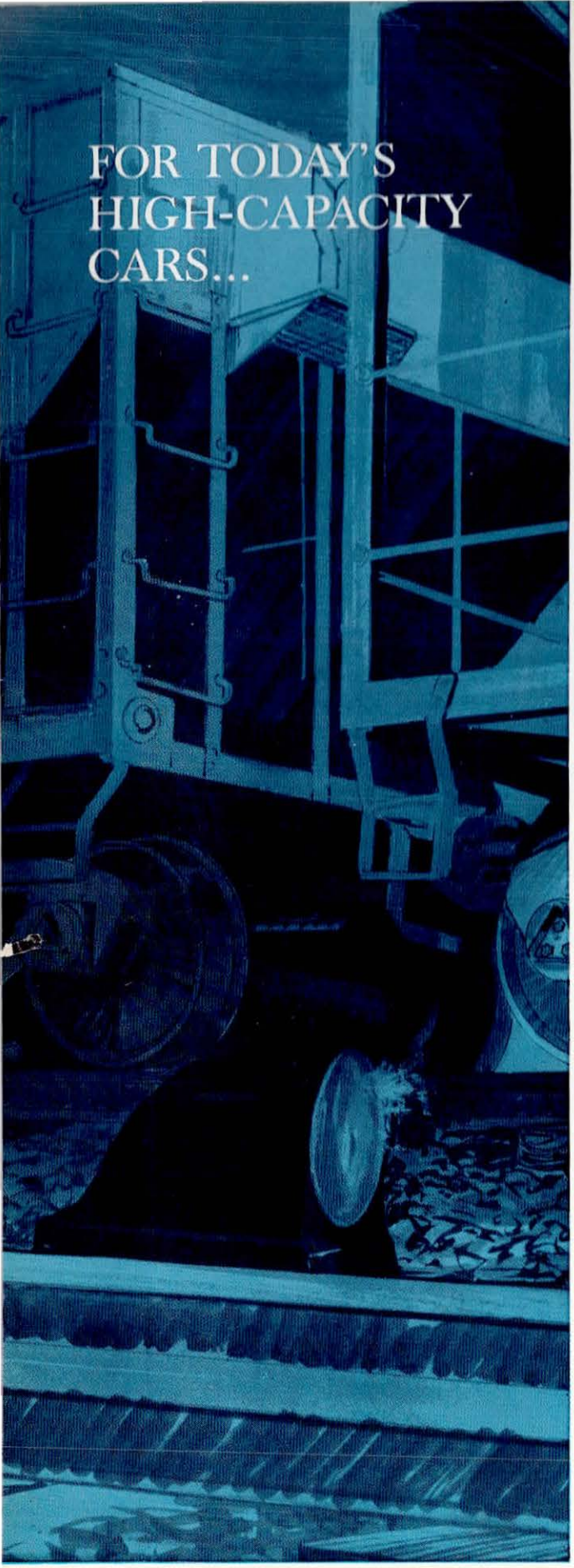
Less than a decade ago, the railroads' share of the auto-hauling traffic was down to a mere 8 per cent. Today king-size rack cars carry nearly 50 per cent, and the figure is steadily rising.

This is the dynamic new spirit that is virtually recreating the railroads of America. Aggressive managements with bold new initiative are writing an exciting success story in the book of free private enterprise at work.

Bethlehem applauds the arrival of these "new" railroads. As shipper, consignee, and supplier, Bethlehem has a large stake in the railroads' success. And we're doing more than cheering . . . with steadily increasing development programs aimed at better rail, long-lasting wheels and axles, and more efficient freight cars.

BETHLEHEM STEEL

BETHLEHEM STEEL



NATIONAL NC-440†

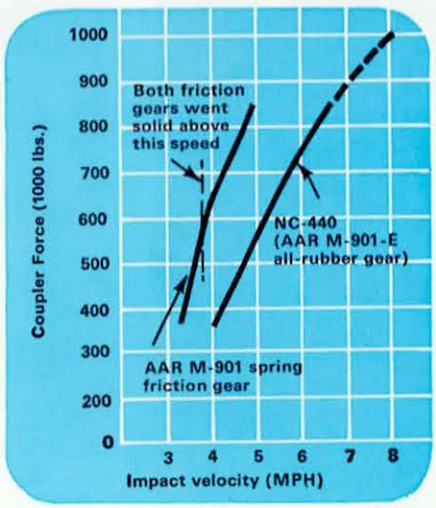
THE FULL CUSHIONING RUBBER DRAFT GEAR...

85,000 ft-lb at 1,200,000 lbs force

Modern high capacity cars need high capacity draft gears — like the only full-cushioning capacity rubber gear, the National NC-440.

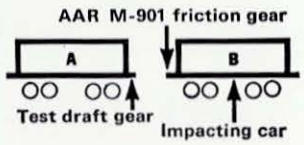
The National NC-440 exceeds AAR Specifications M-901-E and then goes a step further by continuing to provide additional cushioning capacity as force levels increase. (56,500 ft-lb capacity at 808,500 lbs force and 3.26″ AAR max. travel — 85,000 ft-lb capacity at 1,200,000 lbs force and 3.90″ travel*).

You can cut your car structure damage . . . reduce your bad order cars. *Specify National NC-440 rubber draft gears for all your high capacity cars.*



Car Impact Tests, comparison of AAR M-901 spring friction gear and National NC-440 All-Rubber Draft Gear, conducted at National Technical Center, Cleveland (Test 6367-1).

Test Conditions



Car A and Car B — 70 ton covered hoppers
Sand Load=220,000 lbs on rail
Per AAR Spec. M-901G

*When used with the B-E60A-HT Coupler and 17¾″ long striker, the specially recessed follower design of the National NC-440 provides 4⅛″ horn clearance — making available the full-cushioning capacity of the gear.

† **AAR Certificate of Approval Number 44**

For 125-ton cars, also specify low maintenance, smooth riding National Super C-1 Trucks.

NATIONAL CASTINGS DIVISION
Midland-Ross Corporation

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Frank Malone

WATCHING WASHINGTON

COMMISSION REPLAY?—For the 91st Congress, the Interstate Commerce Commission doesn't have to look far for legislative objectives. The ICC annual report says nine of 10 proposals made to the 90th Congress are still pending.

JOINT RATES—On top of the list is the long-sought authority to require establishment of through routes and joint rates between motor carriers—and between truckers and rail, express and water carriers.

DISCONTINUANCES—Also pending is a proposed Interstate Commerce Act amendment that would give ICC more time and "improved procedures" for handling train discontinuances. It includes notice requirement of 60 rather than 30 days; 20 rather than 10 days before effective date for time within which ICC must tell a carrier it will investigate; seven rather than four months as the limit on suspended discontinuances with pending investigations—with provision for an extra two months for disposal of petitions.

JURISDICTION—To help clarify the question of how much authority it has over passenger service, the ICC included in its discontinuance plan a request for sole jurisdiction over the last interstate train between two points—with authority to set minimum standards. In a second move for clarification, ICC asked for legislation for a Commission-Transportation Department study of the existing and future potential for intercity rail passenger service. In addition to the discontinuance and study elements, ICC passenger proposals may be influenced by two projects underway—a probe of real passenger-operation costs and deliberation on an examiner's report stating that ICC does have jurisdiction over passenger standards.

JUDICIAL REVIEW—A measure that would make Commission orders reviewed the same way as orders of other regulatory agencies won Senate passage last September but died in the House. The main effect would be a shift of judicial review for ICC orders from three-judge district courts to appeals courts. Supreme Court review, now permitted through direct appeal from district courts, would be permitted only by petition for a writ of certiorari. The measure would remove the United States as statutory defendant from court challenges to Commission orders—though the Justice Department could intervene in appeals from a Commission order.

AREA meets in Chicago this week

The 1969 annual convention of the American Railway Engineering Association will be held in Chicago's Pick Congress Hotel, March 10-12.

AAR President Thomas M. Goodfellow will deliver the keynote address at the opening session. Also scheduled to address that session are John P. Hiltz, Jr., chairman of the National Railway Labor Conference, and Arthur N. Butland, retired chief engineer way and works, British Railways Board.

The March 10 afternoon session will hear addresses by L. K. Sillcox, honorary vice chairman of the board, New York Air Brake Co., and H. A. Richards, associate research economist, Texas Transportation Institute, Texas A&M University.

The convention also will be addressed by W. H. Megonnell of the Public Health Service (morning session, March 11); H. P. Caulfield, U.S. Water Resources Council, and M. L. Koehler, Penn Central (afternoon session, March 11). E. J. Ward of the Office of High Speed Ground Transportation will address the March 12 morning session.

J. S. Reed, president and chief executive officer of the Santa Fe, will address the AREA convention's annual luncheon in the Great Hall March 11.

A symposium on "Computerized Procedures for Clearing High-Wide and Heavy Loads and Solving Bridge Problems" will be held in the Gold Room during the March 11 morning session. Symposium speakers will be Professor E. N. Wilson, New York University; T. L. Fuller, Southern Pacific; W. D. Glauz, Midwest Research Institute; and W. C. Crabaugh, Kansas City Southern.

Among several social activities prepared for the convention is a reception sponsored by the Railway Engineering-Maintenance Suppliers Association. The reception will open at 6 p.m. in the hotel's Great Hall. Admission will be by ticket only. The tickets will be available during the registration period, as at previous conventions.

Two articles of interest to AREA convention-goers appear on the following pages. One tells how engineers help the profit picture, and the second analyzes the role of rail failures in derailments. ■

How engineers can help the

Top railway engineering officers give Railway Age their views on how engineering and maintenance-of-way departments can contribute to the profitabiliy of the railroads.

By M. H. DICK, Engineering Editor

How define railroad profitability? Consider this definition:

"Profitability presupposes sale of services or products in such quantity and at a price that covers all fixed and variable expenses related to the business, in a manner that provides a positive margin."

This sounds like it might have been a financial vice president speaking. Or a comptroller. But it wasn't either of these. It was Chief Engineer Roy R. Gunderson of the Western Maryland, and he submitted the definition in response to a Railway Age canvass of top engineering officers. Purpose of the canvass was to find out how such officers would answer the question: In what ways can railroad engineering and maintenance of way departments contribute to the profitability of the railroads?

The response indicated that the thinking of modern engineering officers goes far beyond mere consideration of their immediate needs for rail, crossties, ballast and all the other items that go into the properties for routine maintenance. It showed that the average chief engineer, in administering the affairs of his department, has very much in mind the total railroad picture and the responsibilities of himself and his department as they seek to fit into that picture. In short they see themselves as serving a vital role in helping to assure the financial health of the railroad industry.

● **They see a challenge.** In fulfilling this role the engineers recognize that they are faced with a challenge. This is how Gunderson sizes up the challenge as he expands on his discussion of profitability: "Engineering and maintenance of way departments can facilitate sales by providing and maintaining a fixed plant that will allow operations to expedite movement of trafic with greater safety and with less damage. Ingenuity will be stretched to the limit to do this within a slowly rising revenue and rapidly rising costs for labor and materials. There is a tremendous challenge to engineers today, and in the years ahead as we face the responsibilities of increasing the profitability of our companies."

The challenge to engineering departments, as well as the contribution they make, was stated in different terms by E. Q. Johnson, chief engineer of the Norfolk & Western, "Railroad engineering and maintenance of way departments can contribute substantially to the profitability of the railroads by good engineering and maintenance leading to reductions in the outflow of cash," he said. "Because this increase in profits is due to decreased spending rather than increased income, the contribution of these departments is often overlooked when the financial statement is published." Then he had a word of advice for his engineering colleagues. "All railroad engineering and maintenance of way people must realize," he said, "that in many instances good engineering and maintenance involve doing for one dollar what almost any other person could do for two dollars.

"We must design, construct and maintain our tracks and structures at a level consistent with the usage for which they are planned and may be used in the future. Our expenditures for maintenance for each line must equate properly with the traffic requirements of that line. In this way full benefit is received from each dollar spent. A line with inadequate structures and clearances represents profits that cannot be realized."

● **'Harder and smarter.'** O. E. Fort, the Frisco's chief engineer, agrees with this line of thought, and adds some ideas of his own. "With today's requisites for keeping our industry in an ever-competitive and modern stance," he said, "it is necessary that we present new ideas of facilities, their methods of construction and the maintenance of an ever-increasing quantitative and qualitative concept. In planning today's rehabilitation of facilities, improvements and new facilities, it is necessary that they be of the highest quality and durability in order to reduce future maintenance. In short it is necessary that we work not only 'harder' but 'smarter'."

Fort had some refinements to suggest in the manner of apportioning maintenance monies. "By modern mechanical and electronic analyzers," he held, "it is possible to find where our track structures are in the greatest need of improvement or upgrading. Coupled with this should be the priority concept of determining which of these places warrants the greatest expenditures based on tonnage, speeds and traffic density. This is one of the points on which I stress we should work not only 'harder' but 'smarter'. We will thus be able to keep our maintenance on a higher plane than is demanded by modern railroad traffic and thus reduce heavy maintenance expenditures."

Gunderson offered some pointed remarks about the effect on maintenance programs of the new types of equipment now in operation. He put his ideas this way: 'Most responsible railroad engineering and maintenance-of-way people have recognized a drastic

"The realization of an immediate saving by reduced maintenance expenditures may result in a much greater loss over a long period of time."

E. Q. Johnson, chief engineer, N&W.

profit picture

"By modern mechanical and electronic analyzers it is possible to find where our track structures are in the greatest need of improvement or upgrading."

O. E. Fort, chief engineer, Frisco.

"Standards of maintenance must be established and ways devised to accomplish these standards within the funds allotted."

R. C. Tench, chief-engineer-system, C&O/B&O.

change brought about rather recently by the acquisition and operation of equipment that meets customer and operational needs and that is imposed upon a fixed property that is many years behind the new requirements.

● **'Accumulated need' seen.** "The quantity and quality of materials that have been allocated to the maintenance of the property have changed from a holding position to one of accumulated need. Cycle performance of maintenance work was adequate but now is subject to complete review and considerable supplementing. There must be an accelerated utilization of welded rail and strengthening of the tie-and-ballast supporting structure. All of these needs may be contradictory to increasing the owners' share of the revenue dollar but it should be apparent that improved plant is essential if we are to maximize utilization of equipment and operating techniques."

Gunderson agrees with Fort that, in the interest of economy and profitability, the railroads need to adopt more advanced ways of apportioning money for maintenance. He predicts that "electronic test equipment will detect variations and irregularities in the track structure and that computer techniques will pinpoint areas needing immediate attention and also broader areas for program work."

● **How to optimize returns.** Gunderson also advocates use of advanced engineering concepts in other areas. "We must make greater use of operations research techniques in the design of our entire track structures—roadbed, ballast, ties and rail—to optimize returns on the capital and maintenance expenditures we make. Discounted cash flow analysis methods will establish priorities in the allocation and use of available money. Traditional practices will be reviewed by industrial engineering methods to maximize production and minimize the cost of maintenance work. It would seem reasonable that some design parameter could be reached within the industry that would provide valid criteria for the design of motive power, equipment and the track structure."

Gunderson sees "these diverse problems as challenges and opportunities to the engineer as we acknowledge increased static and dynamic loads upon our track structure and as we fulfill our functions and responsibilities without increasing the dollars spent on maintenance."

As costs of labor and materials go up it becomes increasingly important to review all expenditures with the idea of determining whether the maximum benefits are being obtained from the money spent, says R. C. Tench, chief engineer-system, Chesapeake & Ohio/Baltimore & Ohio. He feels this is an area where engineers can apply their ingenuity with the aim of doing a better job.

● **When retrenchment hits.** Tench also has some ideas on how engineering officers should conduct themselves when retrenchment becomes necessary. "When revenues decrease," he said, "the easiest way to retain reasonable profit ratios is to cut expenditures. Engineering and mechanical department budgets are scrutinized first. This is inevitable, and when reductions occur, instead of griping, we must tighten up our belts and find a better way to perform those activities necessary to keep our plants safe and in efficient operating condition."

How would Tench go about achieving this objective? For one thing, he said, long-range planning is essential. He added: "The use of marketing technology in projecting business trends will enable railroads to make better decisions with regard to justification and placement of new classification yards. This tool should also be used in analyzing the need for multi-track lines and the degree of maintenance required. Studying this data and planning accordingly could result in fewer lines to maintain and a better plant—with a greater return on monies spent.

"With regard to maintenance activities, planning again is essential. Standards of maintenance must be established and ways devised to accomplish these standards with in the funds allotted. More efficient usage of mechanized track equipment is necessary. Ways to increase the service life of materials installed is a must. Research and development aimed at the manufacture of

MINIMUM INVENTORIES CAN PRODUCE LARGE SAVINGS

better products should be encouraged."

One of the innovations that Tench finds encouraging is the development of in-track rail-welding equipment. "The potential saving from this idea is tremendous," he said.

● **Keep inventory down.** While on the subject of long-range planning, Tench also urged that steps be taken to minimize inventory, particularly in the engineering department. In view of the increasing cost of material he emphasized the importance of placing orders "based on usage as quickly as possible after receipt." With good cooperation between the purchasing and the using departments he is convinced that inventories can be kept to a minimum with large savings to the company over a long period.

The N&W's E. Q. Johnson also relates long-range planning to profitability but in this area he places some of the responsibility on management. Here's how he puts it: "Every engineering and maintenance of way department has the responsibility for planning a long-range maintenance program that will show a profitability improvement resulting from the benefits of increased efficiency.

"The development of this program alone is not the only step in realizing the full profit potential. Management must be convinced of the long-range profit advantages of such a program. The realization of an immediate saving by reduced maintenance expenditures may result in a much greater loss over a long period of time."

● **Helping other departments** Ways in which engineers can contribute to profitability by placing their talents at the disposal of other departments were mentioned by several of those who responded to the Railway Age canvass. Johnson was one of these. His view is that engineering and maintenance departments can make a substantial contribution to a railroad's traffic and transportation departments "by reviewing and analyzing changes occurring throughout the country, which may develop into a need for transportation service. Many of these changes are the result of engineering research and development and can best be evaluated by qualified engineers."

Another top engineer mentions other ways in which engineers can be of help on an interdepartmental basis. In getting into this subject he noted that "much railroad land can be developed to produce greater revenue by industrial development, by use of areas above tracks in urban areas, or by converting land already used to a use creating some return. Engineering officers can be of great assistance in these endeavors, not only as related to present conditions, but also by keeping such possibilities in mind when changes for strictly railroad purposes are being considered."

● **Engineers as salesmen.** The role of engineers as salesmen for the railroad industry was mentioned by one chief engineer. This comes about, he said, because engineers on many occasions are closely associated with the marketing and traffic people. The result is that often the engineering field force is the first on the railroad to have direct contact with potential shippers when they are lending assistance in laying out spur-track requirements and furnishing estimates.

"A lasting impression of the railroad can be obtained from these first contacts," said this chief engineer. "We stress this point with our engineering people as part of their training. They are indeed salesmen as well as engineers."

Another road to profits

This same officer spoke of another way in which engineers can promote profitability. He referred to the fact that some engineers are continually negotiating with governmental and public bodies.

"Here is definitely an area for saving the company money," he declared, "by adhering to consistent principles and by having complete and proper supporting documentation to back up our requests. I do not mean to imply by this that we are endeavoring to obtain things we are not entitled to. By establishing a reputation for honest negotiation I have found it to pay dividends time and time again."

● **Dealing with outsiders.** Another chief engineer also commented on the possibilities to be realized in negotiations with outside bodies. He is convinced that "much more needs to be done to reduce the adverse effect of grade separations and other construction over, adjacent to, or across rights of way. The outside agencies involved can often be influenced voluntarily to modify such projects to adequately accommodate railroads' present and future requirements if they are fully informed of the underlying reasons.

"If it becomes known that railroads will resist inadequate construction in court, so much the better. Similarly, railroads' participation in the cost of grade separations and automatic grade-crossing protection must be held within reasonable limits since these projects are increasing rapidly both in number and cost. Here again, engineering officers can help by full explanation of the railroads' position and by firm resistance against unreasonable demands."

Profitability-minded engineering departments should not overlook the possibilities offered by property retirements, according to one chief engineer. This officer is "sure that most railroads have many buildings, tracks and other facilities that no longer have any real usefulness. While retiring such facilities may result in a 'paper' loss, much of such loss has already occurred and may as well be admitted. Getting rid of these facilities will reduce maintenance costs and often will free the land to better utilization."

This same officer was not too encouraging in commenting on the newer technologies, including electronic computers. He agrees that many valuable management methods, such as electronic data processing, are becoming available, but he adds that "there are many difficulties in applying such methods to our problems, for the principal reason that the other people do not understand our language and vice versa. The usual result, in computer usage for example, is that the input and output data are arranged for the convenience of the computer people but not for the convenience of those who provide the input information and use the output information.

He adds that "engineering officers will have to speak out on these matters if they want the full benefit of these new management methods."

● **Upgrading the image.** In promoting modern concepts of engineering management with profitability in mind, Frisco's Fort is convinced that the railroads should attempt to upgrade their image for engineering personnel in the eyes of the colleges. He wants the railroads to be able to "attract intelligent and high-caliber engineers who can develop into the engineering and maintenance officers of tomorrow." While recognizing that the American Railway Engineering Association and individual roads have done some work in this area, he thinks "it should be sharpened and accelerated to a greater extent."

How can all these ideas on the engineers' contribution to profitability be summed up in a single sentence? The N&W's Johnson provided the answer in these words:

"Only through careful evaluation of present and proposed construction and maintenance operations, and through close cooperation with other departments on the railroad, can the profitability potential of a railroad's engineering and maintenance-of-way departments be fully realized." ■

DERAILMENT ANALYSIS:

What part do rail failures really play?

About 70% of service failures have occurred in rail of 100 lb or less, and probably in slow speed track, says G. M. Magee, the AAR's assistant vice president-research.

Train accidents due to rail and joint conditions increased in the face of a decline in rail service failures from this cause, according to the results of statistical investigation by the AAR's assistant vice president-research G. M. Magee.

Much has been made of the increase in train accidents. Particular attention has been drawn to the fact that derailments, the most important category of train accidents, increased from 2,671 in 1961 to 4,447 in 1966—or 66.5% *(See Table 1)*. Of the various causes of the derailments occurring in 1966, the greatest increase (140%) occurred among those due to "defects in or improper maintenance of way and structures."

These and other data on train accidents were included in a widely circulated letter addressed on April 3, 1968, by Joseph J. O'Connell, Jr., chairman of the National Transportation Safety Board of the Department of Transportation, to A. Scheffer Lang, then Federal Railroad Administrator.

● **Statistical detective work.** Information on train accidents in the DOT report has now been subjected to a penetrating bit of statistical detective work by the AAR's Magee. In this effort Magee was acting on a request from R. R. Manion, vice president of the AAR's Operations and Maintenance Department. Results of this analysis, which indicated that the basic problem may not be as simple as surface indications might lead one to believe, were reported by Magee before a regional meeting of the American Railway Engineering Association held at Boston last fall, and more recently before a meeting of the Maintenance of Way Club of Chicago.

Magee noted that the increase in derailments from 1961 to 1966 due to track conditions was caused largely by defects in or failure of frogs and switches and to defects in or failure of rail and/or rail joints. The two categories mentioned, said Magee, accounted for 63% of this increase *(See Table 2)*, while derailments due to rails and rail joints alone accounted for 41% of the total increase.

● **Has rail-failure records.** Magee was asked to make the investigation of train accident data related to broken or defective rails because the AAR Research Department maintains complete records on service and detected rail failures for the AREA Rail Committee. These rail failure data, he said, were reported for about 180,000 miles of main track and were separated by the types of failures and for each year from 1962 to 1966, inclusive.

Over twice as many detected failures as service failures are found each year, Magee explained, "but these detected failures need not be considered, because they are removed before rail fracture occurs and do not constitute a hazard of derailment. This, of course, is the reason for the periodic operation of rail-defect-detection equipment such as detector cars and ultrasonic defect-detection equipment. However, all defects are not detected and some of these result in service failures or fractures from train movements. Fortunately, only a small percentage of these service failures result in derailments."

A table was presented itemizing the service rail failures by categories of defects for 1962 and 1966 *(See Table 3)*. This tabulation showed that decreases occurred in seven of the 10 categories. The only categories showing increases were "web in joint", "other web", and "engine-burn fracture."

● **A pertinent question.** "The total of all types of rail failures was substantially the same in 1966 as in 1962," said Magee, "and if adjustments were made for the track-miles reported, the service rail failure rate per 100 track-miles was actually somewhat less in 1966 than in 1962. This raises the question, therefore, as to why we would have such a large increase in derailments attributed to rail and rail joints whereas our records of reported service failures show, if anything, a slight decrease."

In pursuit of the answer to this question Magee went to a tabulation *(See Table 4)* showing the DOT breakdown of derailments by categories of defects in rail and joints. This tabulation showed that derailments due to "other rail failures not due to wear" not only represented the largest single category but also showed the largest increase from 1962 to 1966—108 to 280.

Defects in this category, said Magee,

TABLE 1—DERAILMENTS FROM ALL CAUSES

Primary cause	No. of failures 1961	1966	Trends
Defects in or improper maintenance of way and structures	577	1,388	+140%
Defects in or failure of equipment	1,268	1,550	+22.2%
Negligence of employees	329	553	+68.1%
Other	497	956	+92.4%
TOTAL DERAILMENTS	**2,671**	**4,447**	**+66.5%**

TABLE 2—DERAILMENTS FROM TRACK CONDITIONS

Primary cause	No. of derailments 1961	1966
Defects in or failure of ties and/or tie plates	27	107
Improper track alignment	15	55
Defects in or failure of frogs and/or switches	93	267
Improper superelevation of track	24	60
Defects in or failure of rails and/or rail joints	326	661
Other	92	238
TOTAL DERAILMENTS	**577**	**1,388**

TABLE 3—SERVICE RAIL FAILURES BY TYPES OF DEFECTS

Type of failure	No. of failures 1962	1966
Transverse fissure	598	452
Compound fissure & detail fracture	742	650
Vertical split head	2,645	1,953
Horizontal split head	673	538
Other head	1,639	913
Broken	3,175	2,141
Web-in-joint	15,579	17,547
Other web	893	1,572
Base	922	883
Engine burn fracture	706	931
Total—All types	27,572	27,580
Track-miles reporting	175,223	183,062

TABLE 4—TRAIN ACCIDENTS DUE TO DEFECTS IN RAILS AND JOINTS

Defects	No. of derailments 1962	1966
3201 Broken rail end, with bolted joints	74	81
3202 Broken rail end, with welded joints	1	2
3203 Flow of metal	—	1
3204 Crushed head	1	4
3205 Split head	41	49
3206 Split web	30	93
3207 Broken base	6	16
3208 Other rail failures not due to wear	108	280
3209 Rails, spreading-defective fastening	3	3
3210 Rails, spreading-defective joints	—	10
3211 Rails, spreading other causes	30	31
3212 Rails, giving way because worn	17	37
3213 Rail joints, defective	23	47
3215 Rail joints, improperly maintained	14	2
3216 Compromise joints, defective	1	2
3288 Other defects in or failures of joints	4	3
TOTAL	**353**	**661**

are comparable to defects that the AAR classification lists as transverse fissures, compound fissures and detail fractures, and engine-burn fractures. The total number of service failures of these three types for 1962 was 2,046 and for 1966 was 2,033. "Thus the number of service failures of these types decreased in 1966 compared to 1962, but there was a major increase in train accidents attributed thereto in 1966."

● **The split-head mystery.** A DOT classification called "split head" produced 41 train accidents in 1962 and 49 in 1966. This classification, said Magee, is comparable to a defect the Research Department calls "vertical split head." For 1962 this type of defect produced 2,645 service failures and for 1966 the service failures numbered 1953. "Again, an increase in train accidents occurred in spite of a substantial decrease in number of service failures," Magee noted.

"It is obvious from the foregoing," said Magee, "that the principal increase in train accidents attributed to broken or defective rail in 1966 compared to 1962 resulted from service failures of the type for which the development is associated with the contact pressure of the wheel on the rail (transverse fissures (compound fractures and detail fractures, vertical split heads, other web defects, and engine-burn fractures). It is further apparent that the increase in train accidents occurred in spite of the fact that the number of these types of service rail failures decreased substantially in 1966 compared with 1962 (5,058 versus 5,584) at a period when a 14% increase in gross ton-miles of traffic was carried."

● **Tentative alternatives.** "It can only be concluded, therefore, that the increase in the number of train accidents attributed to rails and joints is due either to conditions which caused a greater likelihood of a derailment occurring from a broken rail in 1966 than in 1962, to a greater cost of derailments in 1966 than in 1962 (making a larger percentage of them reportable as train accidents under the criteria of a personal injury or cost of damage to track and equipment of $750 or more, or to a greater proportion of train accidents occurring on other than main line tracks in 1966 than in 1962. (AAR statistics on rail failures cover only main-line tracks whereas DOT figures apply to all tracks.)

"An apparent relationship has been found to exist between the increase in train accidents attributed to rails and joints and the average car capacity. It is logical to presume that larger cars would be more likely to derail at a service rail failure and that the cost involved in a derailment of such a car would be more. Also, it would be expected that the average inflation of costs approximating 5% a year and totaling somewhat over 20% in 1966 compared to 1962 would produce some increase in the number of reportable accidents. The use of heavier cars might have caused an increased number of derailments from rail and rail joints in other than main-line tracks."

● **AAR committee recommendations.** Magee reported that his findings had been reviewed by the AAR Engineering Division Rail Committee and that this committee had made a number of recommendations aimed at permitting a "more meaningful analysis" of the trend of train accidents attributed to defects in rails and rail joints and to reduce the number of train accidents assignable to such defects. The recommendations:

1. The method of determining what constitutes a reportable train accident should be revised to take into account escalation of costs due to increases in labor and material costs from year to year.

2. Member roads should closely examine the assignment for cause of train accidents including metallurgical examination of failed rails, if necessary.

3. Make a study of service rail failures occurring on member roads with respect to type of failure; size of defect, if any; size of rail; age of rail; time of elapse since last inspection with rail-defect-detection equipment; and traffic density for the purpose of developing criteria for establishing the interval for operating rail-defect-detecting equipment.

4. As an interim measure, where rail-defect-detector cars or devices disclose a substantial increase in number of defects in track or the proportionate number of service failures increases, consideration should be given to shortening the intervals between tests or taking other appropriate action.

● **DOT records reviewed.** With these recommendations in mind, Magee continued his investigation. He visited the DOT Bureau of Railroad Safety where he "was shown every courtesy" and permitted to review the individual train accident reports for 1967, although he only had time to review these reports for two large roads for derailments attributed to the "rail and joint" category.

"From this review," he reported, "I do not believe that increasing the limit of cost from $7750 to a larger amount that would reflect inflation of cost of labor and material would reduce the reportable train accidents in the period studied by more than 10% at the most. For 54 derailments I reviewed, only four had a reported cost for damage to track and equipment within the range of $750 to $1,000."

Magee reported that it was not possible to make a study of the individual train accident reports for the years 1962 and 1966, because these reports are kept for only one year. However, he was able to make an analysis of all derailments occurring in 1967 due to defects in rail and joints. Of the 744 derailments that occurred in this category, he found that 257 took place on main track, 160 on branch-line track, and 327 on yard track. "It seems likely," he concluded, "that most of the increase occurred on branch and yard tracks."

● **The factor of speed.** He also said that he was interested to note that most of the derailments attributed to rails and joints occurred at slow speed. "I have only had time to date," he said, "to review the Eastern District in this respect, but out of 372 derailments reported in 1967, 216 occurred at a speed below 10 mph; 300, below 20 mph; and 327, below 30 mph. As would be expected, those occurring at the higher speeds resulted in much greater cost per derailment and there was more likelihood of a casualty."

Magee also had something to say about the operation of rail-defect-detection equipment. "I might point out," he said, "that the occurrence of 27,580 service failures in 1966 with only about twice this number of failures detected, appears to warrant serious consideration of the possibilities of substantially increasing the ratio of detected-to-total failures. Approximately 70% of these service failures have occurred in rail of 100 lb size or less and probably in slow-speed track.

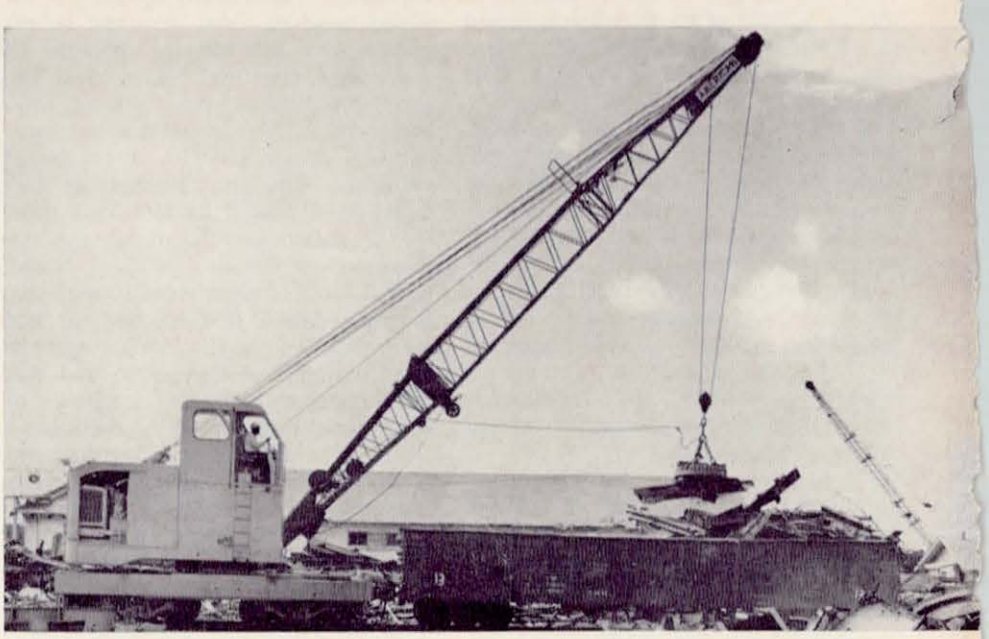
"Possibly rail-defect-detection equipment has not been operated over it, and consideration might be given to operating such equipment over it as well as over some yard tracks and slow-speed passing track that may not have been tested. Each road might review its practice in this regard." ■

New products for engineers

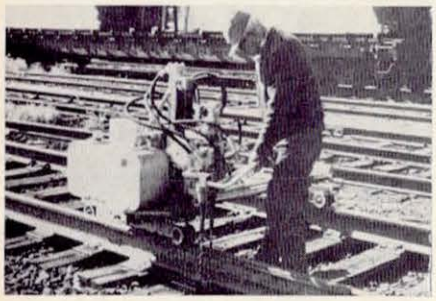
The search for better tools to help railroads upgrade maintenance and operating techniques is never ending. Here is a selection of some of the more recent developments in the field.

Locomotive crane can lift up to 40 tons (RA-1)

A recent development in the American DieselElectric line of cranes is the Model 7030 DE locomotive crane. With its standard 50-foot boom, the main hoist of this unit will lift up to 30 tons free-over-the-side and up to 40 tons with outriggers set. Maximum recommended length of boom is 100 feet and, for duty-cycle work, 70 feet. Model 7030 DE is powered by a GM Model 6-71 diesel engine rated 145 hp at 1600 rpm, although a Cummins HR6-1P or a Caterpillar D33CT diesel engine may be obtained as optional. A GE Model 1519 variable-voltage generator and two traction motors, one on inside axle of each truck, rate 60 hp and are standard equipment. The crane is mounted on an all-welded structural-steel carbody. Travel speed is up to 10.75 mph. The horizontal swing is controlled by internal-expanding, tandem-band clutches and a swing brake.

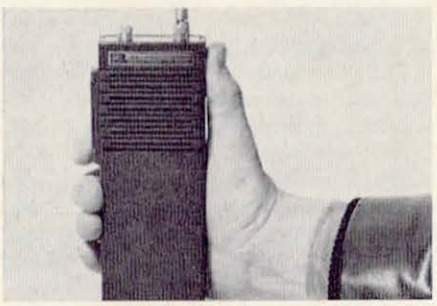


Controlled boom lowering is standard. For magnet, bucket and grapple work, it is equipped with a 26-inch diameter standard drum lagging rated at 22,000 lb line-pull at 200 fpm. *American Hoist & Derrick Co.*



Drill breakage is reduced with this tie borer (RA-2)

A new feature that has been added to the Raco hydraulic twin-spindle Tie Borer is the ability to set or control the torque of the drill motors. This, when properly set, permits the drill bits to stop when they encounter a spike stub or other hard foreign object, thus reducing drill breakage. An optional feature permits drilling at both rail positions or any position in between as necessitated by turnout rails. *Railroad Accessories Corp.*



Two-way radio improves voice legibility (RA-3)

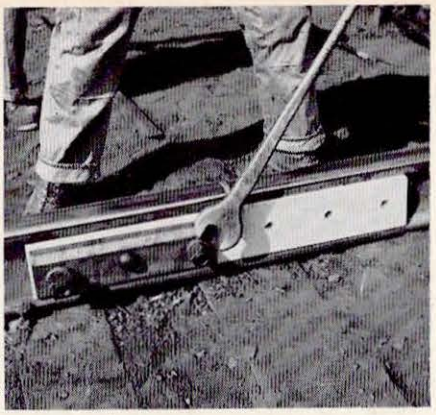
A portable two-way radio, designated the HT 220 series "Handie-Talkie," is available in the 150.8 to 174 MHz range. Its 1.8 watts RF power output is said to provide improved voice legibility and the same range as the earlier HT 200 series. Receiver sensitivity of the new unit has been increased 40%, and the frequency stability has been improved to ±0.015% from −30 deg C to +60 deg C. *Motorola Communications & Electronics, Inc.*

Spike puller has many improvements (RA-4)

Modifications that have just been completed on the Fairmont Dual Spike Puller, now designated W113 Series B, include improvements in the following areas: Controls that are simplified by straight rods, jaws and linkage that are stronger, better two-spool valve, increased guard-rail clearance, and replacement of the gear pump by a vane pump. Available as extras are a hydraulic turntable group and set-off rail group. *Fairmont Railway Motors, Inc.*

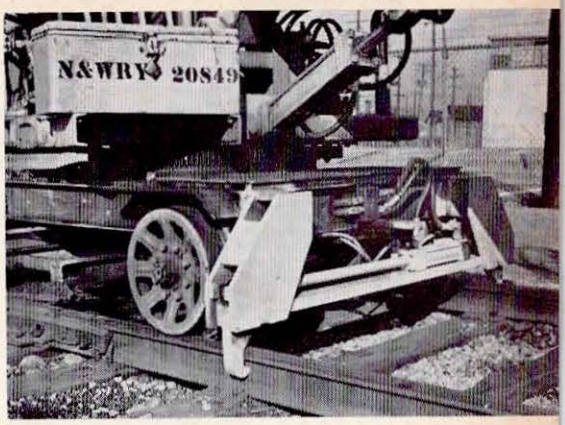
Ballast machine can move bigger loads (RA-5)

Designated Model 250 is a ballast-working machine that is said to embody many of the tried and proven elements of European design, but is constructed of entirely American components and to American standards. It is stated that the drive of a General Motors diesel and an Allison Torqmatic power-shift transmission, matched to a heavier gross vehicle weight, results in greatly increased tractive effort and attendant load-moving capacity. Other features include telescopic sidewings and a rugged split bi-directional front plow for plowing in or out, as well as for the transfer of ballast. The hydraulically operated broom with heavy-duty elements has cab control of "pitching wedge" deflector section to accommodate switch "sweeping," as well as brooming of open track. To attain constant speed while brooming, and to eliminate clutch slippage in the main transmission, the unit is equipped with an independent creeper-gear, adjustable from zero to 3.5 mph. *Matisa.*



Insulated joint has a sleek silhouette (RA-6)

During more than five years of development, the 3M Insulated Rail Joint has undergone numerous improvements. The sleek silhouette of today's joint bears little resemblance to the crude assemblies first placed in the track on the Great Northern in August 1963. However, there is one feature that has not been changed and that is that the joint bar is made of "Scotchply" fiberglass reinforced epoxy material. The joint bars are designed to offer optimum strengths in flexure (for rolling loads), in tension (for pull-apart loads), and in compression and bearing (for closure loads). The bars are inclined to provide total support for the rail head while allowing for a positive and self-adjusting fit at the rail base. The backup plates, rolled from the same steel used for rails and angle bars, are punched with the same oval/round alternate bolt pattern. Finally, the bars are drilled to a spacing which minimizes horizontal movement in the rail ends. *3M Co.*



Tie handler stability has been increased (RA-7)

To provide additional stability to its Tie Handler, particularly on bridges and high fills, Nordberg is offering rail-clamp attachments as optional equipment. The rail clamps are mounted at each corner of the machine and are hydraulically operated by a single lever which controls both the clamping and releasing actions. Two warning lights permit the operator to see at a glance whether or not his machine is in a clamps-up or clamps-down position. *Nordberg Manufacturing Co.*

Curve rail grease is made for heavy cars (RA-8)

A new product is now marketed for lubricating rails on curves. Designated Grease EP (extreme pressure), it is a soft, smooth, blue-black, water-stabilized calcium-soap grease. Grease EP was developed to withstand the extreme pressures on the high rails that are produced by the heavier cars when they pass around curves. *Texaco, Inc.*

New rail-welding process is available here (RA-9)

Another aluminothermic rail-welding process, designated Alfex "Calorite," has been introduced to the North American railroad market. In this process the rail ends are brought together with the desired rail gap and to proper horizontal and vertical alignment. The three-part moulds, which include two side and one base-plate mould, are set. The rail ends are preheated to a temperature of 1650 deg F, after which the welding material in a sealed bag is placed in a crucible, ignited, brought over the mould and poured. As soon as the metal has solidified two or three minutes after casting, the mould is broken. A pneumatic chisel is then used to cut off the excess metal and final rail profile is obtained by a wheel-head grinder. *Vale Enterprises Ltd.*

RAILWAY AGE
THE TRANSPORTATION WEEKLY

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• Inquiries can be processed only if title and company are shown.

LUTHER MILLER

AS THE EDITOR SEES IT

METROLINER vs HIKARI—In recent years Americans traveling in Japan have come home with glowing reports of the "luxurious" Hikari trains that whip at high speeds over the New Tokaido Line between Tokyo and Osaka. The comparisons drawn between Japan's best and America's best have been, to use the friendliest possible word, barbed. A United States Senator even suggested, with heavy sarcasm, that the U.S. send its passenger-car designers to Japan to learn their trade. Now the U.S. has its own version of tomorrow's passenger train—the Penn Central's Metroliners between New York and Washington. The question naturally (and a little trepidatiously) arises: What do the Japanese think of *our* trains? How do the Budd-built Metroliners stack up, item for item, against their celebrated counterparts in the Orient?

A JAPANESE VERDICT—Some interesting—and not entirely expected—answers were provided by two Japanese car designers who visited the editorial offices of *Railway Age* fresh from their first Metroliner ride. Their verdict: "The Metroliner cars look like the inside of a jet airplane. In interior design and passenger comfort, they are superior to the Hikari cars." The authors of this judgment: Gentarow Nishio, director of design, rolling stock division, Tokyu Car Manufacturing Co., Yokohama (and before that, deputy director of rolling stock design for the New Tokaido Line); and Masahide Suzuki, chief of Tokyu Car's industrial engineering section.

WHAT MR. NISHIO LIKED—Mr. Nishio explained that the Hikari equipment was designed with the no-nonsense needs of the Japanese businessman in mind, while the Metroliners (in his view) were designed to appeal to a general, more luxury-accustomed class of rider. Whatever the reason, he found the differences notable and nearly always in the Metroliner's favor. He was especially impressed with the Metroliner's reclining-seats-for-everyone (only first-class passengers get them on the NTL); with the diffused heating and air conditioning (Hikari's air vents are all in the ceiling); with the soothing, indirect lighting; with the noise-reducing carpet-like material that covers part of the Metroliner's inside walls; with the background music "that causes bothersome noises to disappear"; with the Metroliner's telephone service which is available to any point in the U.S. (from the Hikari trains, you can call only Tokyo, Yokohama, Nagoya, Kyoto, Osaka and Kobe); with the plastic carbody ends. As for ride quality, he found New Tokaido an easy winner (not surprising, since a billion-dollar line was built expressly for this service). And Mr. Suzuki found one other difference in Japan's favor: NTL cars have attendants resembling Geisha girls; Penn Central cars, he noted gravely, don't.

TURN OF THE TIDE?—All in all, the Japanese visitors were impressed, and expressed confidence that the Metroliners will be a huge success. One question arises: Will this year's crop of Japanese tourists go back home demanding some Metroliner amenities?

...switch heater

- Switch point and tie rods free and clear of ice and snow.
- Heat directed along rail and down between ties.
- Will not smother or blow out due to drifting snow and high winds.

PEOPLE IN THE NEWS

ATLANTA & WEST POINT—WESTERN OF ALABAMA—GEORGIA.—Harold C. Tomassi, freight traffic manager, Atlanta, appointed traffic manager–sales and service. **C. E. Martin,** general freight agent, named traffic manager–rates and divisions. **R. E. Thompson,** assistant general freight agent, promoted to general freight agent.

T. P. King, director of personnel, Atlanta, appointed assistant to general manager–director of personnel.

BALTIMORE & OHIO.—Bernard A. Kidwell, general car foreman, East St. Louis, Ill., appointed assistant car superintendent, Washington, Ind., and has been succeeded by **Michael J. Bell. Edgar R. Hannas,** named general car foreman, Toledo. **Patrick J. Morrissey,** assistant to car superintendent, Pittsburgh, named general car foreman, Holloway.

BESSEMER & LAKE ERIE—DULUTH, MISSABE & IRON RANGE—ELGIN, JOLIET & EASTERN—LAKE TERMINAL —UNION. — David A. Curry appointed senior systems engineer–operations research, Pittsburgh, Pa.

BURLINGTON. — Roger G. Robbins named to the newly created position of director of intermodal operations, Chicago.

Thomas M. Walsh appointed project coordinator-market planning; **Tony L. North,** statistical planning assistant-market research; **Kenneth W. VanderBloomer,** senior statistical analyst-market research; **Thomas E. Donovan** and **Hans Boeve,** statistical analysts, all with headquarters in Chicago.

Stephen F. Kuzma, assistant master mechanic, Lincoln, Neb., appointed district master mechanic, Galesburg, Ill. Mr. Kuzma's successor is **Robert V. Propp,** general foreman, West Burlington, Iowa, Shop, who in turn is replaced by **Eugene Williams,** terminal general foreman, Lincoln.

Theodore R. Campbell named to the newly established position of sales manager of trailer/container-on-flat-car traffic, Chicago.

Wayne L. Arntzen, assistant to the vice president of operations, Chicago, appointed superintendent, Chicago division, Cicero, Ill. Mr. Arntzen's successor is **Henry E. Pierce,** assistant general superintendent of transportation. **Charles K. Keck,** trainmaster, Hannibal division, Galesburg, Ill., named assistant superintendent, Chicago division, Cicero.

Charles E. Able, assistant superintendent, Aurora, Ill., named superintendent of transportation, Chicago.

CANADIAN NATIONAL.—Garth C. Campbell, general manager, passenger sales and services, Montreal, appointed to the new position of general manager, special duties. He will undertake a comprehensive study of marketing procedures embracing all elements of the CN's rail services. **J. F. Roberts,** general manager, St. Lawrence Region, succeeds Mr. Campbell as general manager, passenger sales and services.

Louis M. Poitevin, manager, Quebec Area, succeeds Mr. Roberts. **Jacques Gauthier,** operations manager, Champlain Area, named Quebec Area manager. **W. H. Cyr,** Montreal Area manager, named general superintendent of equipment, St. Lawrence Region, and is succeeded by **William J. Mayo,** assistant area manager. **J. Raymond Gosselin** replaces Mr. Mayo.

W. M. Pelland, assistant to the tax commissioner, Montreal, appointed system tax commissioner, succeeding **W. G. Kelsey,** retired.

G. H. Bloomfield, manager, Edmonton Area, named manager of railway and marine services in British Columbia at Vancouver, B.C.

R. H. Tivy, who has been on loan to the International Bank for Reconstruction & Development, resumed the position of general superintendent transportation, Toronto, on Dec. 20.

G. Roy Boulet, manager, Chaleur Area, Cambellton, N.B., appointed executive assistant, Atlantic Region, Moncton, N.B. Mr. Boulet will assist **J. W. G. Macdougall,** vice president of the region, and **C. T. Cameron,** general manager, in improving CN's services.

Walter E. Braun
C&NW

F. H. Hiskes
CSS&SB

CANADIAN PACIFIC.—A. F. Craig appointed manager, freight tariff bureau, Montreal, succeeding **F. J. James,** who retired Dec. 31. **G. T. Brown** appointed rate research officer, Montreal, succeeding **D. A. L. McDonald,** who retired Dec. 31.

James A. Saunders appointed division engineer, Laurentian Division, Montreal, succeeding **R. A. Whitman,** resigned.

CHESAPEAKE & OHIO—BALTIMORE & OHIO.—George C. Totty, assistant general real estate agent, C&O, Huntington, W. Va., promoted to general real estate agent of both roads at Baltimore.

Herbert J. Pettyplace district sales manager, C&O, Saginaw, Mich., retired Dec. 1, after more than 49 years of service.

CHICAGO & ILLINOIS MIDLAND.—J. R. Mosteika, general traffic manager, assumed the additional duties of purchasing agent and general storekeeper.

CHICAGO & NORTH WESTERN.—Walter E. Braun, assistant vice president and director of rates and divisions, elected vice president–sales and marketing.

J. M. Ellison, assistant trainmaster, Central division, Mason City, Iowa, ad-

(Continued on page 41)

Circle 8 on coupon page 36

FRA's new chief: Unknown now—but wait

Reginald N. Whitman

When the Republicans announced, from their 1968 convention in Miami Beach, that Spiro T. Agnew had been tapped as the vice-presidential candidate, the cry went up from near and far: "Spiro Who?"

There was a bit of the same reaction last week, when the name of the new Federal Railroad Administrator was announced: "Reginald Who?"

Those who know him best, those who have watched him work at Great Northern and on the Alaska Railroad these past few decades, have only one reply to make: "They may not know Reginald N. Whitman now—but they will."

For the record, Whitman has been GN's general manager-lines east for the past 12 years, with his base of operations first at Duluth and later at St. Paul. In the mid-1950s, he served a hitch as general manager of the Alaska Railroad. And it was RNW whom the ARR called upon in 1964 to return to Anchorage to lend a valued hand in getting the railroad running again after the Good Friday earthquake.

Washington and the railroad industry, however, will soon be finding out a lot more about Whitman than what appears in the record.

As one long-time associate puts it, "Reg is the kind of guy who likes to get into the middle of things and stir them up. He's never been one to maintain the status quo—and, as a matter of fact, I think his only detractors have been the kind of people who hate to see the status quo disturbed."

At GN, Whitman is known as a "clean-desk" man. He's known as a good delegator of authority—and as an equally good man at following up to make sure the job is being done. His territory has covered some 4,800 miles of GN line, west to Williston, N.D., and including the major system class yard at Minot, N.D. If there's been trouble somewhere on the lines east, Whitman more than likely would be there in short order—out with the crews on the dozers clearing snow, or donning hip boots to see first-hand how GN is battling the floodwaters that are a frequent problem.

Another GN man gives the new FRA chief high marks for the way he gets a job done: "He can be rough. He's not the type of fellow who runs a popularity contest, by any means. But he's enthusiastic and he's positive. He's the kind of man who attracts strong loyalties—the kind of guy who turns people on."

Still another insight comes from the old days, when Whitman was climbing through the ranks in GN's operating department: "He handled his share of investigations—and he had a reputation among the men of being exceedingly fair, which ought to tell you something about the man."

In his comment on the appointment, AAR President Thomas M. Goodfellow called Whitman "a man of outstanding competence and energy." Whitman's former associates on GN agree—though they might be inclined to use a stronger adjective than "outstanding."

GN people also take note of the man's versatility and adaptability—evidenced in part by the fact that he was slated to become system vice president-purchases and stores under the Burlington Northern merger.

The rest of the Whitman story is left for him to tell—as his administration with DOT takes shape. He has not been a speech-making railroad man, nor one whose name and fame have spread broadly beyond the upper Midwest and the GN system. At the same time, he's been a seen-and-known man at every point, large or small, in his GN territory.

Now, Whitman's territory is considerably bigger. His responsibilities are both bigger and different. He has a tough act to follow—that of the first administrator, A. Scheffer Lang, who called them as he saw them, who let the chips fall where they might, who had a view of FRA which refused to permit it to become merely a special pleader for the industry.

Reg Whitman has to be an unknown quantity, as he moves into the office close by the railroad tracks at 6th and D Streets, SW. But judging by what GN people say and basing it upon experience, there is this point to make: Not for long will transportation people ask any such question as "Reginald Who?"

—Gus Welty

LETTERS

Tomorrow's Railroads

Baltimore

To the Editor:

I congratulate you on the "Tomorrow's Railroads" series. It is difficult to imagine a more useful series of articles at this time than ones which will probe deeply the future of the railroad industry. I hope that your reporters have been able to develop from sources outside the industry, as well as inside, sufficient background to lend objectivity to the pressures of the environmental forces which will surround transportation in ten, twenty or fifty years from now, for the success or failure of a particular transportation mode must depend upon its environment and upon its adaptability to changes in environment. The industry needs realizable objectives, together with the financial resources, technological skills, and executive drive to attain them.

W. Arthur Grotz
President
Western Maryland

Washington, D.C.

To the Editor:

. . . Your approach to the subject of the railroads of today and their future is most insightful, and I will look forward to the remainder of this series.

Gordon Allott
United States Senator

Washington, D.C.

To the Editor:

. . . This article and the series to follow will be beneficial to everyone concerned with the nation's railroads and their role in our continued economic growth. We are looking forward to reading the remainder of the series.

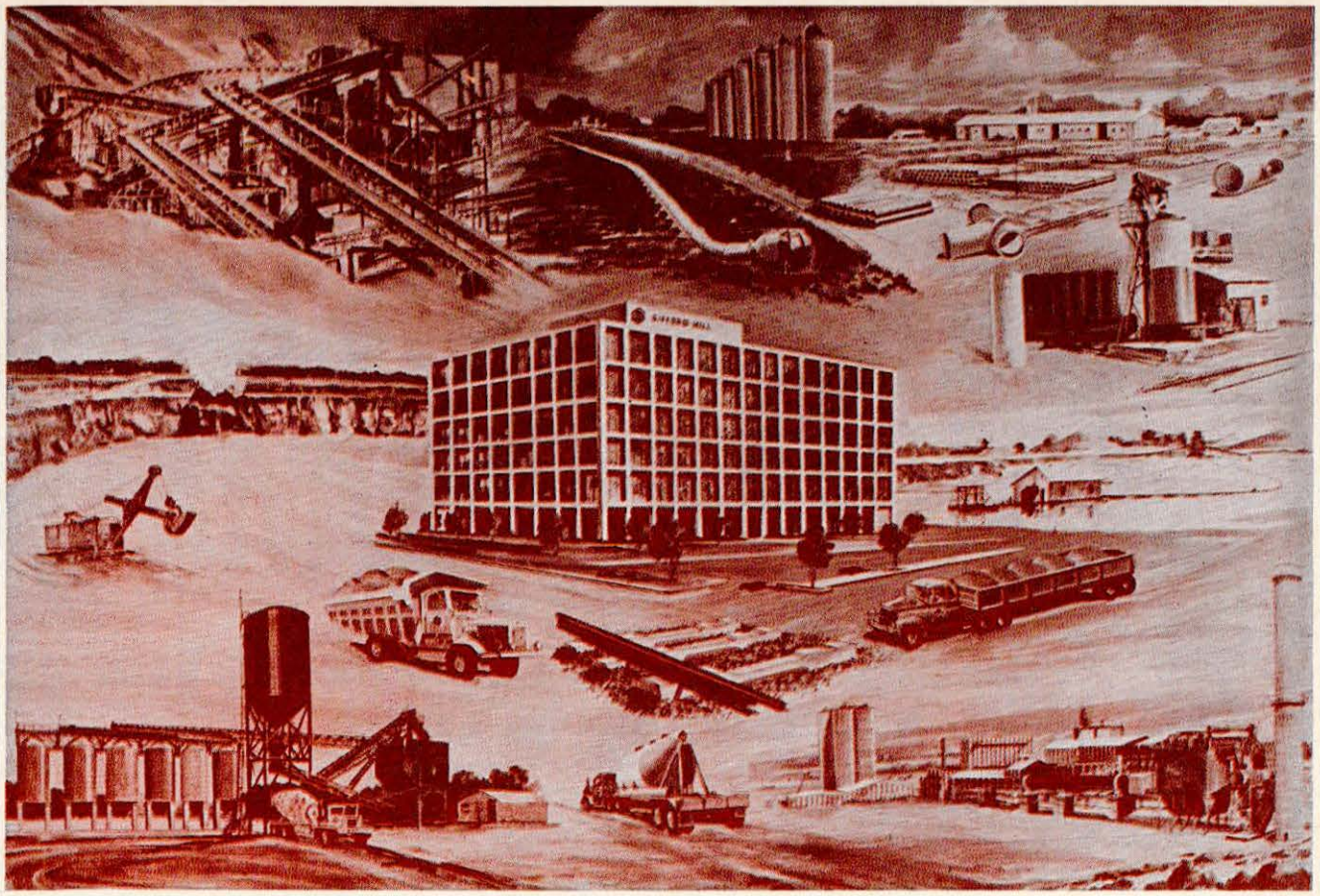
Charles R. Weaver
Director
Transportation Products Division
U.S. Department of Commerce.

Washington, D.C.

To the Editor:

I hope that your series will have a chance to examine in some detail the possibility of increased railroad passenger service in the United States. I for one am convinced that with increasing traffic jams above our nation's major airports a speedy efficient rail passenger service network between major cities within a radius of 100 to 500 miles of each other could be a smashing success.

William Proxmire
United States Senator



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THE GIFFORD-HILL COMPANIES PROUDLY EXTEND *"a hand in progress"*

Circle 22 on card opp. page 25

CAR HANDLING CAME DOWN WHEN ABEX ECONOMATIC

DT&I's busy north-south hump yard at Flat car retarders and switch machines.

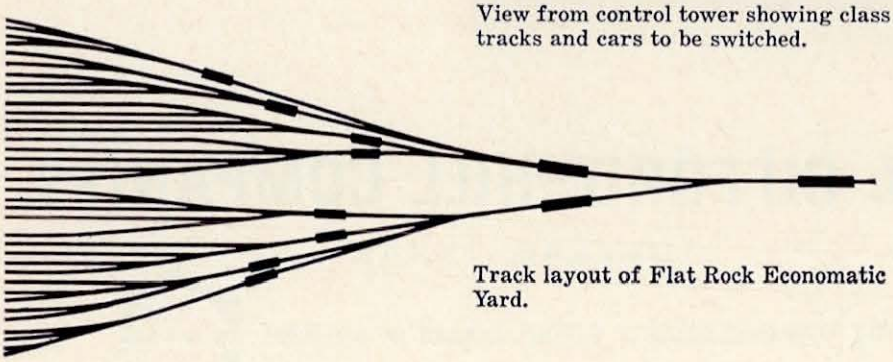
Four years ago the Detroit, Toledo and Ironton took a hard look at its main yard and terminal located at Flat Rock, Michigan.

The railroad found the yard running out of capacity to handle traffic increases forecast for future years.

The DT&I solved its problem by completely reconstructing the yard and converting it from flat switching to gravity, with all operations based on the Economatic yard concept developed by Abex.

View from control tower showing class tracks and cars to be switched.

This fully-automated, console-controlled 36-track yard has handled over 1900 cars over the hump in 24 hours—and it is not yet being used to full capacity. A second lead over the crest remains to be installed when additional capacity is needed.

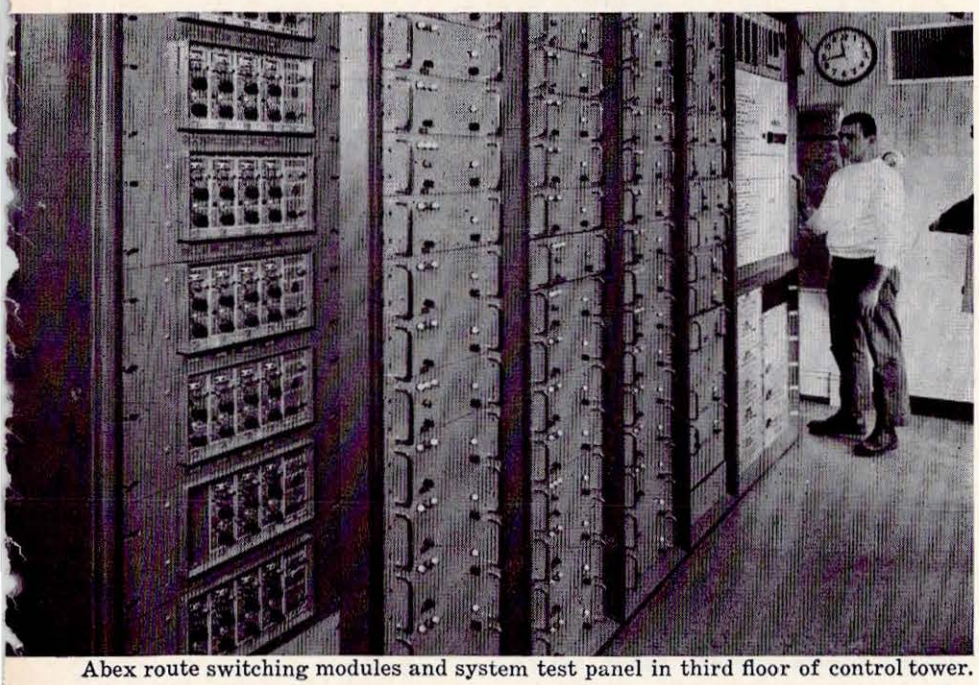


Track layout of Flat Rock Economatic Yard.

In less than a year, operating improvements have paid off in faster service to shippers and reduced costs for the DT&I.

WENT UP AND COSTS DT&I CONVERTED TO CONCEPT!

Rock keeps traffic rolling with help of Abex route switching,



Abex route switching modules and system test panel in third floor of control tower.

Here are just a few important benefits:

Improved handling of crossover cars... reduced yard switching time for pullers... reduced terminal delay for road trains... reduced time for cars to move through the terminal!

Abex track-side equipment at Flat Rock presently consists of:

- Route switching system and operator's console.
- 1 double-length Racor hydraulically-actuated, weight-compensating retarder below the hump crest.
- 2 double-length intermediate retarders on the lead to tracks 1 through 18 and 19 through 36.
- 8 single-length (39 ft.) group retarders to control speed to several track groups.
- 35 Racor hydraulic switch machines.
- 36 Racor mechanical retarders to protect leaving ends of class tracks.

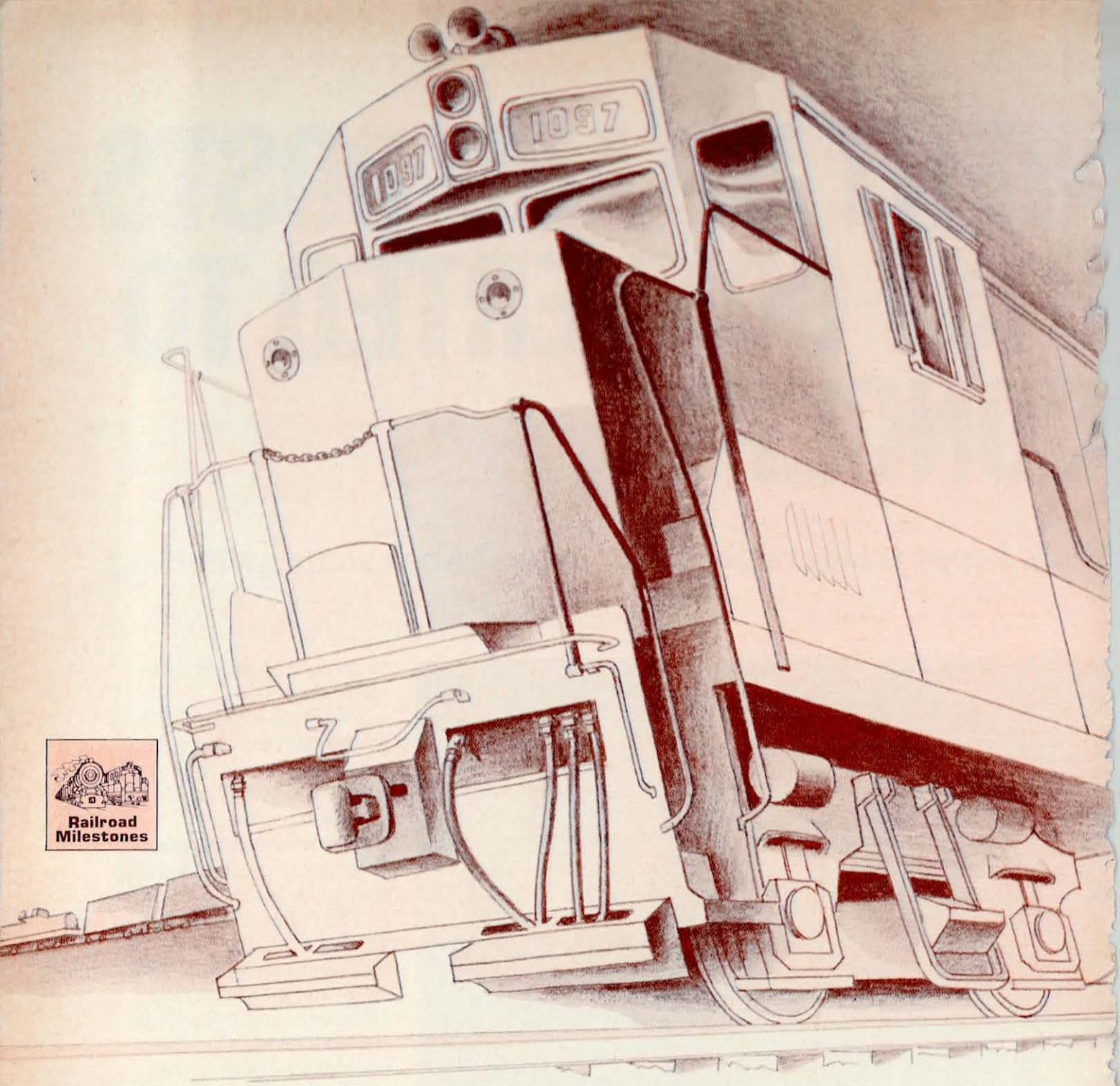
The DT&I's Economatic yard at Flat Rock is another outstanding example of the time- and money-saving efficiency of equipment designed by Abex. Further proof is available in the yards of leading railroads throughout the U.S.

If you'd like to see the Economatic yard concept in action, see your Abex representative. He will gladly make arrangements.

MEMBER RPI RAILWAY PROGRESS INSTITUTE

Abex CORPORATION
Railroad Products Group
VALLEY ROAD, MAHWAH, N. J. 07430

Circle 9 on coupon page 25



Railroad Milestones

When railroads switched to diesels... Edgewater was there!

High among the factors contributing to the amazing progress of American railroads was the changeover from steam to diesel locomotives.

The movement started in the 1930s. For many years previous to this, Edgewater had been making rolled steel tires for steam locomotive wheels, and wrought steel wheels for freight and passenger cars. But the higher speeds possible with diesel locomotives required wheels of greater strength and toughness. Heat treating was the answer, so we installed the furnaces and other equipment needed to produce the kind of wheels diesel service demanded.

The original development, and subsequent improvement of wrought steel wheels for cars and diesel locomotives, is but one example of how Edgewater has consistently contributed its specialized capabilities to railroad progress.

FOR MILESTONES AHEAD

Assuming that future progress in railroading will require wheels of even greater strength and stamina, Edgewater conducts a continuous program of research. Many grades of plain carbon and alloy steels, and the effects of various heat treatments, are studied and evaluated in terms of railroad service requirements. Thus, Edgewater prepares for Milestones Ahead.

EDGEWATER CORPORATION
P. O. BOX 478 PITTSBURGH, PA. 15230

Circle 11 on coupon page 25

Fourth Quarter and Twelve Months of Calendar Year 1968

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Operating Revenues: Pass.	Operating Revenues: Total (inc. misc.) 1968	Operating Revenues: Total (inc. misc.) 1967	Operating Expenses: Maint. Way and Structures: Total 1968	Maint. Way and Structures: Total 1967	Maint. Way and Structures: Deprec. and Retirements	Maint. Equipment: Total 1968	Maint. Equipment: Total 1967	Maint. Equipment: Deprec. and Retirements	Traffic	Transportation	Total 1968	Total 1967	Operating ratio 1968	Operating ratio 1967	Net from railway operation	Railways tax accruals	Net Railway operating income 1968	Net Railway operating income 1967
Akron, Canton & Youngstown	3 mos.	171	1,840	—	1,889	1,982	242	244	21	330	409	134	113	683	1,472	1,546	77.9	78.0	417	203	269	302
	12 mos.	171	7,685	—	7,918	7,279	1,060	1,010	81	1,485	1,424	547	451	2,782	6,175	5,927	78.0	81.4	1,744	866	1,173	1,036
Ann Arbor	3 mos.	293	2,435	2	2,491	2,166	293	189	22	436	372	138	56	1,187	2,054	1,760	82.5	81.3	437	181	13	77
	12 mos.	293	9,137	2	9,457	8,931	1,165	816	91	1,777	1,565	557	219	4,630	8,082	7,229	85.5	80.9	1,375	730	—173	378
Atchison, Topeka & Santa Fe	3 mos.	12,861	158,563	5,327	176,264	171,171	25,349	21,323	2,494	33,804	35,115	10,692	4,748	66,748	139,217	132,219	79.0	77.2	37,047	15,523	17,596	18,936
	12 mos.	12,872	606,781	24,766	673,375	663,494	107,312	93,072	10,033	138,474	142,541	43,037	19,015	258,969	556,194	544,852	82.6	82.1	117,181	58,254	48,097	50,750
Baltimore & Ohio	3 mos.	5,681	101,930	877	108,550	106,308	14,507	12,650	2,046	17,183	15,247	2,872	3,006	43,655	85,204	80,374	78.5	75.6	23,346	7,787	1,572	4,004
	12 mos.	5,731	413,135	4,409	441,022	411,809	55,906	48,048	6,664	67,616	63,926	10,717	11,440	172,486	333,145	312,516	75.5	75.9	107,876	30,940	18,510	14,790
Bangor & Aroostook	3 mos.	543	3,127	65	3,247	2,911	773	619	67	1,204	1,105	428	85	1,085	3,384	3,062	104.2	105.2	—137	287	12	17
	12 mos.	543	13,025	258	13,578	13,696	3,078	2,848	268	4,428	4,385	1,708	335	4,403	13,178	12,901	97.1	94.2	400	1,199	1,547	1,623
Bessemer & Lake Erie	3 mos.	221	8,504	—	9,194	11,327	977	797	148	1,246	2,496	100	172	2,249	5,373	8,065	58.4	71.2	3,820	1,361	3,012	7,563
	12 mos.	221	36,150	—	38,402	35,379	4,214	4,548	568	4,420	6,057	—268	644	9,053	20,966	22,757	54.6	64.3	17,436	9,887	9,065	6,474
Boston & Maine	3 mos.	1,532	14,367	1,184	17,043	16,303	2,292	2,179	442	3,076	2,717	644	385	8,045	14,656	13,609	86.0	83.5	2,387	1,279	—701	—84
	12 mos.	1,532	56,749	4,604	67,034	62,615	8,807	8,208	1,749	10,963	9,694	2,551	1,440	31,157	559,29	51,304	83.4	81.9	11,105	5,075	—1,294	277
CPR Lines in Maine	3 mos.	234	1,297	49	1,415	1,079	296	207	61	233	199	46	47	470	1,160	1,032	82.0	95.6	255	77	—81	—249
	12 mos.	234	5,942	196	6,365	5,843	1,212	965	241	943	939	184	192	1,954	4,759	4,452	74.8	76.2	1,607	307	220	—1
Central of Georgia	3 mos.	1,729	12,312	178	12,891	12,318	2,277	2,369	176	2,069	2,650	755	323	4,704	10,128	10,947	78.6	88.9	2,763	234	1,768	591
	12 mos.	1,729	48,855	874	51,109	45,732	9,989	9,650	654	9,735	9,904	3,027	1,266	18,840	42,926	44,010	84.0	96.2	8,182	875	4,169	—1,654
Central RR of New Jersey	3 mos.	594	9,957	880	12,581	12,101	1,831	1,555	262	2,114	2,200	420	311	6,620	11,943	11,601	94.9	95.9	638	1,133	—2,379	—2,993
	12 mos.	594	40,647	3,497	50,878	48,322	6,446	5,913	1,072	8,302	9,277	1,692	1,287	25,306	45,422	46,260	89.3	95.7	5,457	4,559	—6,189	—9,381
Central Vermont	3 mos.	382	1,932	8	1,982	1,987	459	484	44	257	134	12	37	929	2,051	1,616	103.5	81.3	—69	178	—426	—16
	12 mos.	382	7,823	10	8,101	8,095	1,801	1,981	235	1,030	1,124	49	146	3,563	7,390	7,419	91.2	91.7	711	684	—989	—1,037
Chesapeake & Ohio	3 mos.	5,106	96,899	707	101,802	101,363	10,856	10,855	1,570	19,756	19,659	6,244	3,178	40,915	81,153	79,091	79.7	78.0	20,648	6,477	13,153	15,933
	12 mos.	5,122	378,317	3,184	400,508	397,214	44,256	42,556	5,993	77,755	75,856	25,722	11,133	161,587	317,881	310,708	79.4	78.2	82,628	36,132	46,053	48,588
Chicago & Eastern Illinois	3 mos.	862	12,039	31	12,782	11,165	2,119	3,244	155	2,224	2,199	565	396	4,679	9,906	10,816	77.5	96.9	2,875	647	396	—1,648
	12 mos.	862	44,925	185	47,433	42,083	8,097	8,378	525	8,720	7,922	2,255	1,616	17,386	38,646	37,145	73.2	88.3	8,787	3,087	—1,111	—2,522
Chicago & Illinois Midland	3 mos.	121	1,050	—	1,097	1,357	94	97	23	244	246	36	8	325	736	786	67.1	57.9	361	185	192	374
	12 mos.	121	4,401	—	4,585	5,556	416	479	87	863	934	142	28	1,365	3,105	3,507	67.7	63.1	1,481	936	528	796
Chicago & North Western	3 mos.	11,588	63,270	5,207	71,496	72,095	10,620	11,920	1,803	12,038	12,565	4,147	2,164	30,649	61,269	66,726	85.7	92.6	10,227	5,563	—918	—5,620
	12 mos.	11,540	244,381	20,943	275,771	270,697	41,263	44,405	6,259	46,836	46,975	16,432	9,176	117,456	235,597	234,190	85.4	86.5	40,174	22,987	—2,313	—10,640
Chicago, Burlington & Quincy	3 mos.	8,538	69,157	3,848	78,597	72,512	9,588	7,632	1,552	12,340	12,402	4,186	2,246	30,103	58,349	54,957	74.2	75.8	20,248	8,205	8,628	8,520
	12 mos.	8,537	247,266	16,158	284,752	277,084	37,593	32,993	5,793	49,483	50,688	16,988	9,072	115,484	227,962	225,552	80.1	81.4	56,790	25,010	21,668	18,757
Chicago Great Western	3 mos.						Included in Chicago & North Western															
	12 mos.																					
Chic., Milw., St. Paul & Pacific	3 mos.	10,512	61,709	2,663	69,698	66,219	10,504	7,784	1,319	10,932	10,532	3,303	2,012	28,649	56,284	50,779	80.8	76.7	13,414	6,007	2,370	5,142
	12 mos.	10,511	236,708	10,758	268,675	256,387	39,469	33,333	5,322	42,784	40,089	13,297	7,629	112,635	219,545	204,185	81.7	79.6	49,130	23,612	7,247	11,439
Chicago, Rock Island & Pacific	3 mos.	7,277	57,485	1,498	62,423	55,313	8,770	5,697	760	9,607	10,058	1,916	1,610	26,711	49,848	45,414	79.9	82.1	12,575	3,281	1,130	—682
	12 mos.	7,277	221,795	6,141	239,346	221,885	34,766	31,427	3,569	39,689	40,067	8,178	6,414	102,760	196,613	190,756	82.1	86.0	42,733	17,410	—6,518	—14,049
Clinchfield	3 mos.	306	7,785	—	7,825	7,510	813	869	79	1,334	1,126	599	251	2,106	4,783	4,548	61.1	60.6	3,042	784	2,353	2,490
	12 mos.	306	30,154	—	30,328	30,513	3,251	3,242	291	4,930	4,578	2,391	979	8,411	18,593	18,150	61.3	59.5	11,735	2,975	9,431	10,199
Colorado & Southern	3 mos.	708	3,998	—1	4,094	3,667	397	506	36	842	591	307	72	1,289	2,991	2,529	73.1	69.0	1,102	420	547	650
	12 mos.	708	15,821	13	16,175	15,169	1,733	1,964	158	2,874	2,729	1,235	263	5,177	11,208	12,301	69.3	81.1	4,966	1,722	2,874	1,454
Ft. Worth & Denver	3 mos.	1,280	3,961	—	4,085	5,386	627	549	96	528	555	119	180	1,903	3,693	3,461	90.4	64.3	393	217	—362	1,191
	12 mos.	1,280	17,605	—13	18,285	18,831	2,526	2,507	391	2,400	2,991	520	727	7,742	14,904	15,882	81.5	84.3	3,381	1,105	—138	—246
Delaware & Hudson#	3 mos.	734	9,939	185	10,394	10,318	1,196	1,399	109	1,553	2,214	403	394	3,829	7,694	8,391	74.0	81.3	2,701	1,209	1,602	830
	12 mos	734	39,730	725	41,454	41,583	5,919	5,170	646	7,940	9,274	1,922	1,439	15,648	33,862	33,603	81.7	80.8	7,593	5,104	2,969	3,398
Denver & Rio Grande Western	3 mos.	2,153	23,766	287	24,341	22,115	2,276	2,018	392	4,101	3,468	1,370	823	7,624	16,168	15,374	66.4	69.5	8,174	4,252	3,659	4,102
	12 mos.	2,153	89,574	1,975	92,662	88,334	9,875	9,922	1,540	15,025	13,886	5,357	3,291	30,258	63,803	62,446	68.9	70.7	28,859	14,247	13,930	13,958
Detroit & Toledo Shore Line	3 mos.	50	1,710	—	1,829	1,850	195	269	37	278	244	111	69	603	1,257	1,268	68.7	68.6	572	159	283	244
	12 mos.	50	6,372	—	6,801	6,595	605	725	77	1,067	975	446	259	2,423	4,791	4,825	70.5	73.2	2,010	601	644	572
Detroit, Toledo & Ironton	3 mos.	467	7,231	—	7,540	6,347	677	545	85	1,319	1,448	629	246	2,641	5,306	4,801	70.4	75.6	2,235	564	1,062	392
	12 mos.	467	27,229	—	28,527	25,106	2,489	2,162	333	5,336	5,693	2,286	948	10,145	20,452	18,841	71.7	75.0	8,075	2,199	3,414	2,296

(Continued on next page)

Fourth Quarter and Twelve Months of Calendar Year 1968

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

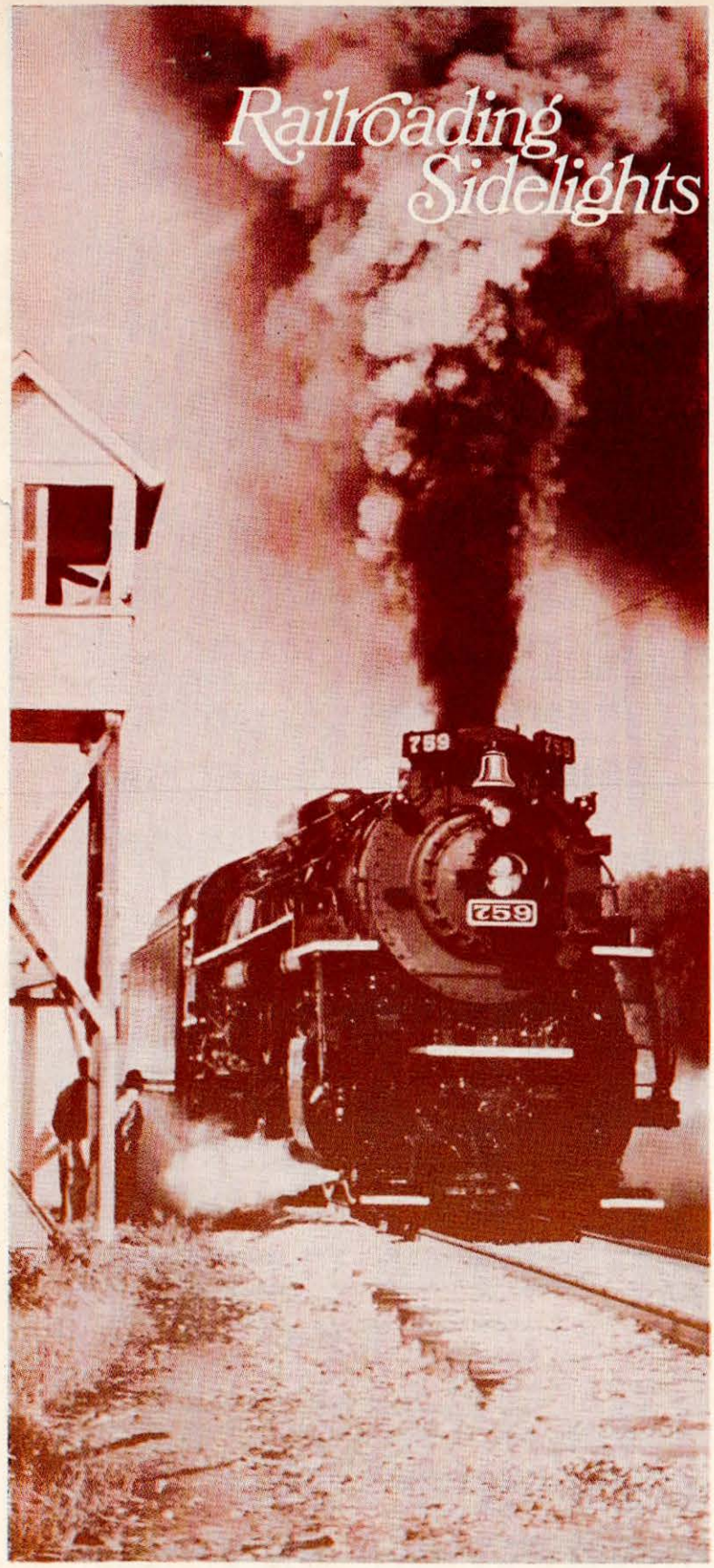
REVENUES AND EXPENSES OF RAILWAYS

Name of Road		Average mileage operated during period	Operating Revenues				Operating Expenses										Operating ratio		Net from railway operation	Railways tax accruals	Net Railway operating income	
							Maint. Way and Structures			Maint. Equipment												
			Freight	Pass.	Total (inc. misc.) 1968	Total (inc. misc.) 1967	Total 1968	Total 1967	Deprec. and Retirements	Total 1968	Total 1967	Deprec. and Retirements	Traffic	Transportation	Total 1968	Total 1967	1968	1967			1968	1967
Duluth, Missabe & Iron Range	3 mos.	515	5,947	—	6,390	6,284	1,585	1,562	473	1,479	1,538	587	71	2,182	6,112	6,041	95.7	96.1	278	251	147	259
	12 mos.	513	32,508	—	35,298	33,023	6,328	5,716	1,229	5,435	5,485	2,224	225	9,819	25,033	23,737	70.9	71.9	10,265	6,824	4,299	4,280
Duluth, Winnipeg & Pacific	3 mos.	170	2,101	—	2,105	2,475	228	487	16	427	142	2	41	790	1,549	1,510	73.5	60.9	557	61	120	425
	12 mos.	173	8,910	—	9,011	8,674	987	1,589	64	1,132	536	9	164	3,141	5,669	5,487	62.9	63.2	3,342	1,123	847	958
Elgin, Joliet & Eastern	3 mos.	205	8,327	—	12,727	14,157	1,288	924	102	2,189	2,107	459	169	4,942	10,095	9,760	79.3	68.9	2,631	1,813	—382	1,523
	12 mos.	205	37,192	—	55,156	51,033	5,562	4,931	425	9,223	8,292	1,773	681	20,659	41,662	37,817	75.5	74.1	13,495	7,884	2,443	3,681
Erie Lackawanna†	3 mos.	2,904	54,654	2,789	62,386	59,725	6,020	7,177	281	9,355	10,323	1,849	1,308	27,721	46,992	48,560	75.3	81.3	15,393	4,570	4,950	1,445
	12 mos.	2,905	212,725	10,709	243,072	223,842	27,408	27,642	3,008	39,452	39,561	7,971	5,229	111,022	193,942	187,893	79.8	83.9	49,130	19,170	7,780	—208
Florida East Coast	3 mos.	571	7,238	—	7,394	6,699	3,237	1,688	215	1,228	888	294	203	1,535	6,642	5,542	89.8	82.7	751	20	—112	130
	12 mos.	571	25,155	25	25,698	23,676	8,541	5,544	1,063	4,042	3,724	1,153	718	6,178	21,183	19,210	82.4	81.1	4,515	1,886	—308	23
Georgia Railroad	3 mos.	331	2,304	3	2,427	2,338	381	361	44	381	398	104	138	920	1,978	1,956	81.5	83.7	449	147	177	101
	12 mos.	331	9,149	43	9,782	10.094	1,439	1,395	172	1,627	1,648	409	566	3,692	7,944	8,056	81.2	79.8	1,837	593	649	867
Grand Trunk Western	3 mos.	946	17,438	476	19,008	18,227	2,050	1,947	202	2,142	2,042	194	436	9,137	14,908	13,763	78.4	75.5	4,100	1,713	—2,359	—755
	12 mos.	946	64,398	1,964	70,656	66,873	8,120	8,402	868	9,460	9,685	773	1,624	34,743	58,282	55,640	82.5	83.2	12,374	6,624	—9,129	—9,365
Great Northern	3 mos.	8,275	66,134	2,129	72,543	66,863	9,455	8,807	1,217	12,134	11,478	3,569	2,196	26,964	55,318	53,130	76.3	79.5	17,225	7,155	9,563	4,767
	12 mos.	8,277	241,025	8,828	266,305	260,243	39,710	39,767	5,121	46,349	45,330	14,087	8,073	105,342	217,280	212,853	81.6	81.8	49,024	26,633	20,574	15,592
Gulf, Mobile & Ohio	3 mos.	2,734	22,658	491	24,507	23,479	3,234	2,672	320	4,572	4,509	1,312	838	8,225	17,954	16,859	73.3	71.8	6,553	2,251	2,721	2,675
	12 mos.	2,734	88,952	2,010	96,147	92,151	12,364	11,271	1,143	18,235	17,892	5,345	3,448	32,495	70,785	67,181	73.6	72.9	25,362	8,432	10,390	10,423
Illinois Central	3 mos.	6,786	68,611	5,928	78,833	79,073	92,76	9,709	1,461	14,551	12,293	4,107	2,334	30,615	61,740	59,181	78.3	74.8	17,093	7,831	5,177	7,318
	12 mos.	6,750	264,144	23,672	304,571	299,152	39,063	37,956	5,584	56,046	50,915	16,147	8,865	118,847	243,164	232,364	79.8	77.7	61,407	29,402	15,931	21,346
Illinois Terminal	3 mos.	340	2,318	—	2,573	2,318	362	355	11	665	570	110	45	1,164	2,421	2,354	94.1	101.5	152	187	—337	—632
	12 mos.	340	8,924	—	9,927	9,513	1,311	1,183	44	2,152	1,838	451	307	4,132	8,675	8,231	87.4	86.5	1,252	818	—851	—712
Kansas City Southern	3 mos.	894	11,341	96	12,342	10,967	1,441	1,117	229	2,034	1,908	799	396	4,147	8,569	7,787	69.4	71.0	3,773	1,041	1,687	1,579
	12 mos.	894	43,911	589	48,135	44,860	5,564	4,181	746	8,089	7,792	3,094	1,511	16,669	33,952	31,415	70.5	70.0	14,183	3,763	6,206	6,158
Lake Superior & Ishpeming	3 mos.	103	927	—	1,142	1,770	241	239	34	360	390	196	8	471	1,177	1,233	103.0	69.1	—35	cr 64	47	219
	12 mos.	103	5,142	—	6,301	6,706	1,174	1,097	264	1,461	1,473	776	35	1,886	4,977	4,925	78.9	73.4	1,324	866	588	900
Lehigh Valley	3 mos.	946	11,250	—	11,688	11,300	1,479	1,255	266	1,597	1,597	328	398	5,960	10,178	9,392	87.1	83.1	1,510	906	—1,020	—419
	12 mos.	953	44,837	—	46,438	44,957	5,856	5,309	1,048	6,630	6,314	1,327	1,603	23,517	40,583	38,584	87.4	85.8	5,855	3,872	—1,445	—2,613
Long Island	3 mos.	322	2,105	18,258	21,127	20.319	3,254	2,536	261	5,550	6,106	606	152	12,956	23,453	23,060	111.0	113.5	—2,327	1,414	—4,856	—5,057
	12 mos.	322	9,225	73,480	86.088	80.766	10,459	11,761	1,068	21,003	19,270	2,443	695	49,343	86,972	82,799	101.0	102.5	—885	5,671	—10,768	—10,879
Louisiana & Arkansas	3 mos.	746	7,341	56	7,669	6,871	872	824	71	973	1,043	388	324	2,509	5,007	4,682	65.3	68.1	2,662	1,206	675	814
	12 mos.	746	28,882	359	30,487	27,812	3,837	3,018	280	4,153	4,332	1,650	1,236	10,065	20,567	19,253	67.5	69.2	9,920	3,901	3,260	2,645
Louisville & Nashville	3 mos.	5,569	74,435	492	77,567	72,881	9,812	9,082	1,478	15,980	15,274	6,946	1,926	28,078	59,821	58,227	77.1	79.9	17,746	6,407	10,602	9,748
	12 mos.	5,570	288,427	2,653	301,712	285.365	40,020	38,048	4,903	63,175	60,176	27,516	7,478	112,834	239,415	231 225	79.4	81.0	62,297	22,358	35,079	31,411
Maine Central	3 mos.	921	6,026	—	6,123	6,035	1,066	1,101	88	1,277	1,242	292	119	2,148	4,993	4,938	81.5	81.8	1,130	433	623	513
	12 mos.	921	23,617	9	24,149	23,853	4,185	4,472	348	4,925	4,814	1,174	458	8,628	19,704	19,578	81.6	82.1	4,445	1,741	1,803	1,714
Missouri-Illinois	3 mos.	444	1,625	—	1,650	1,638	111	126	13	525	560	352	25	375	1,107	1,163	67.1	71.0	543	195	1,292	1,020
	12 mos.	444	6,710	—	6,820	6.285	739	497	51	2,168	2,084	1,360	120	1,473	4,780	4,500	70.1	71.6	2,040	1,020	4,532	3,579
M K T Lines	3 mos.	2,789	15,427	—	16,004	14,795	2,413	2,538	218	1,761	3,076	464	874	6,555	12,435	12,858	77.7	86.9	3,569	1,110	—244	—1,998
	12 mos.	2,789	62,364	—	64,593	56,858	9,515	10,273	1,027	7,986	9,241	1,997	3,252	24,613	48,439	47,839	75.0	84.1	16,154	4,874	—769	—5,151
Missouri Pacific	3 mos.	8,979	82,003	539	87,996	81,267	15,151	11,106	2,765	14,914	13,206	3,619	2,173	31,318	67,980	59,090	77.3	72.7	20,016	5,373	5,433	9,331
	12 mos.	9,014	307,674	2,973	331,531	318,329	52,697	43,205	6,852	54,903	53,197	14,153	8,031	117,896	249,870	231,744	75.4	72.8	81,661	24,040	25,568	33,649
Monon	3 mos.	540	5,463	—	5,697	5,198	836	623	65	686	796	174	251	2,066	4,237	3,858	74.4	74.2	1,460	423	486	503
	12 mos.	540	20,479	—	21.349	19,799	2,926	2,459	244	3,121	3,185	822	965	7,832	16,343	15,495	76.6	78.3	5,006	1,623	1,440	1,285
Monongahela	3mos.	167	2,201	—	2,211	1,640	529	230	36	217	167	34	3	430	1,218	880	55.1	53.7	993	97	580	235
	12 mos.	167	6,543	—	6,585	6,573	1,815	1,007	139	788	611	123	13	1,826	4,577	3,649	69.5	55.5	2,008	342	289	1,015
New York Central	3 mos.	Included in Penn Central																				
	12 mos.	" " "																				
Pittsburgh & Lake Erie	3 mos.	209	6,515	14	6,953	8,449	755	669	214	2,165	2,313	1,265	186	3,119	6,928	6,894	99.6	81.6	25	1,119	3,732	4,243
	12 mos.	209	31,640	62	33,817	32,013	3,673	3,433	748	10,735	10,183	5,061	856	13,198	31,069	28,898	91.9	90.3	2,748	6,966	13,691	12,761
New York, New Haven & Hartford	3 mos.	1,500	15,981	9,219	30,485	30.445	4,260	3,852	830	6,580	5,762	1,298	616	16,089	29,448	27,440	96.6	90.1	1,037	2,493	—5,454	—2,959
	12 mos.	1,502	63,821	36,372	121,002	120,105	17,590	17,337	2,923	25,031	24,455	5,224	2,419	65,694	119,216	115 655	98.5	96.3	1,787	11,188	—24,215	—20,179
Norfolk & Western	3 mos.	7,585	157,156	512	164,247	151,397	17,976	13,784	2,338	26,698	23,799	11,224	3,601	59,816	115,684	106,546	70.4	70.4	48,563	14,610	27,013	26,305
	12 mos.	7,583	613,447	2,504	641,839	594,178	67,368	57,706	9,318	102,803	94,550	43,464	13,425	233,974	447,599	416,138	69.7	70.0	194,240	59,187	106,884	104,770

#Delaware and Hudson Railroad acquired by Delaware and Hudson Railway effective July 1, 1968. Figures shown for Delaware and Hudson include results of operations of both companies.

†Erie Lackawanna Railroad acquired by Erie Lackawanna Railway effective April 1, 1968. Figures shown for Erie Lackawanna include results of operations of both companies.

(Continued on page 36)



1869 1969
GOLDEN SPIKE
CENTENNIAL

NO. 759 "RECHRISTENED" FOR CENTENNIAL CELEBRATION. Former NKP freight steam locomotive No. 759, "rechristened" last September at Conneaut, Ohio, pulls out for a busy eight months prior to the big doings at Promontory, Utah. The Berkshire engine was overhauled in the N&W Railroad roundhouse at Conneaut, where retired railroaders performed the work. Operated by the High Iron Co., Inc., of Lebanon, N. J., No 759 is owned by Steamtown, U.S.A., Bellow Falls, Vt. A full-width reprint of this photo is available on request.

Skills in Transition

As railroads modernize their equipment and methods, supplier capabilities must keep pace. An example is illustrated below.

Thirty years ago we produced quantities of bands for steam locomotive springs. The part was simply a piece of bar stock, bent, and forge-welded at the bottom. Today we're called upon to produce such intricate forged parts as rocker arms for Diesel locomotives, involving advanced concepts in forging design.

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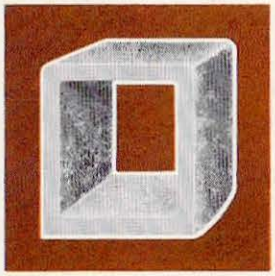

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Circle 12 on coupon page 25

Fourth Quarter and Twelve Months of Calendar Year 1968

(Dollar figures are stated in thousands: i.e. with last three figures omitted)

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Operating Revenues: Pass.	Operating Revenues: Total (inc. misc.) 1968	Operating Revenues: Total (inc. misc.) 1967	Operating Expenses: Maint. Way and Structures: Total 1968	Maint. Way and Structures: Total 1967	Maint. Way and Structures: Deprec. and Retirements	Maint. Equipment: Total 1968	Maint. Equipment: Total 1967	Maint. Equipment: Deprec. and Retirements	Traffic	Transportation	Total 1968	Total 1967	Operating ratio 1968	Operating ratio 1967	Net from railway operation	Railways tax accruals	Net Railway operating income 1968	Net Railway operating income 1967
Norfolk Southern	3 mos.	624	3,051	—	3,128	2,897	571	466	71	478	444	178	163	976	2,458	2,166	78.6	74.8	670	202	219	312
	12 mos.	624	11,214	—	11,476	10,533	1,923	1,914	280	1,789	1,725	713	616	3,606	8,969	8,506	78.2	80.8	2,507	855	839	529
Northern Pacific	3 mos.	6,772	53,385	1,282	56,760	52,430	8,584	8,263	708	9,453	8,776	3,201	1,801	21 013	44,895	43,572	79.1	83.1	11,865	5,469	7,346	7,363
	12 mos.	6,775	195,926	5,495	210,001	197,215	32,286	30,538	3,978	38,650	37,556	12,876	6,568	83,764	177,449	171,402	84.5	86.9	32,553	22,227	14,491	13,326
Northwestern Pacific	3 mos.	324	2,612	4	2,627	2,470	701	—8	93	159	147	4	23	839	1,823	1,191	69.4	48.2	804	286	—35	297
	12 mos.	324	10,616	27	10,683	9,222	2,507	2,634	336	526	560	15	84	3,311	6,920	6,851	64.8	74.3	3,763	725	828	—682
Penn Central	3 mos.	19,139	301,067	26,147	369,859	389,256	45,312	38,314	8,112	63,203	64,316	15,496	5,549	180,069	321,976	307,300	87.1	78.9	47,884	26,126	—21,947	11,009
	12 mos.	19,210	1,251,816	105,087	1,516,237	1,509,832	173,066	161,205	29,931	254,489	259,810	64,033	25,167	719,791	1,267,895	1,233,336	83.6	81.7	248,341	106,042	—26,993	17,525
Penn Reading Seashore Lines	3 mos.	322	1,739	39	1,944	1,890	498	381	252	349	347	58	11	1,329	2,307	2,125	118.7	112.4	—363	168	—1,038	—842
	12 mos.	322	7,075	163	7,847	7,659	1,733	1,590	417	1,475	1,509	254	54	5,387	9,108	8,945	116.1	116.8	—1,262	645	—3,926	—3,785
Piedmont & Northern	3 mos.	150	1,679	—	1,730	1,802	135	155	18	125	149	31	116	388	923	934	53.3	51.8	807	254	374	283
	12 mos.	150	6,487	—	6,694	6,984	595	626	77	490	523	123	451	1,546	3,704	3,667	55.3	52.5	2,990	1,210	1,028	1,088
Reading	3 mos.	1,228	21,734	1,899	26,295	26,330	3,749	3,874	691	4,985	5,450	1,519	738	11,476	22,808	23,261	86.7	88.3	3,487	1,999	135	—8
	12 mos.	1,228	88,207	7,074	105.971	100,559	15,823	14,654	2,468	19,898	20,129	6,447	2,836	45,710	91,473	88,780	86.3	88.3	14,498	8,494	—203	—1,673
Richmond, Fredericksburg & Potomac	3 mos.	118	4,724	827	6,394	6,124	549	542	103	727	1,159	249	101	2,107	4,043	4,416	63.2	72.1	2,351	1,379	748	733
	12 mos.	118	18,718	3,913	25,840	25,508	2,166	2,176	413	3,305	3,793	1,003	385	8,543	16,421	17,099	63.5	67.0	9,419	5,455	3,200	3,230
St. Louis-San Francisco	3 mos.	4,577	40,382	—	42,315	38,063	4,600	4,716	612	5,459	5,147	2,104	1,463	15,908	29,668	26,846	70.1	70.5	12,647	4,210	5,702	5,437
	12 mos.	4,577	154,366	—	161,040	147,029	20,867	19,611	2,574	22,206	20,964	8,293	5,652	59,811	117,558	108,734	73.0	74.0	43,482	15,649	18,650	16,922
St. Louis Southwestern	3 mos.	1,566	27,681	—	28,105	25,488	3,740	3,469	239	5,495	4,721	2,266	725	10,066	20,871	17,717	74.3	69.5	7,234	2,879	4,424	7,091
	12 mos.	1,566	106,413	—	107,890	96,835	10,447	8,914	891	18,445	15,645	8,786	2,782	36,437	71,224	61,867	66.0	63.9	36,667	13,676	24,253	26,678
Savannah & Atlanta	3 mos.	167	883	—	914	989	106	183	8	175	160	83	30	330	706	770	77.3	77.9	208	95	164	157
	12 mos.	167	4,182	—	4,274	4,298	717	878	4	707	687	331	122	1,347	3,157	3,358	73.9	78.1	1,117	690	646	540
Seaboard Coast Line	3 mos.	9,130	100828	4,336	110,699	106,002	13,473	12,435	1,537	19,357	19,999	5,996	3,583	44,795	87,293	84,622	78.9	79.8	23,406	8,810	5,520	5,780
	12 mos.	9,260	389,460	22,198	432,193	417,396	54,922	51,169	5,757	77,817	77.590	24,809	13,969	171,413	342,903	330,017	79.3	79.1	89,291	30,460	24,187	29,941
Soo Line	3 mos.	4,694	25,211	1	25,704	21,293	4,346	3,331	469	3,187	2,927	761	791	9,299	18,744	16,354	72.9	76.8	6,960	2,630	2,729	2,967
	12 mos.	4,679	91,921	19	94,075	85,777	14,688	14,396	1,445	12,778	12,564	3,415	2,966	36,116	70,915	68,845	75.4	80.3	23,160	8,524	8,836	4,616
Southern Railway	3 mos.	6,085	86,458	911	91,610	81,738	11,705	8,458	1,395	15,068	12,089	4,473	2,337	28,931	62,591	52,710	68.3	64.5	29,019	9,879	14,425	15,711
	12 mos.	6,085	323,720	45,07	342,433	314,770	42,119	34,175	4,634	59,907	52,586	18,203	8,664	110,373	239,527	215,326	69.9	68.4	102,906	35,580	46,037	47,504
Alabama Great Southern	3 mos.	327	5,431	48	5,907	5,557	875	624	150	1,079	1,035	329	149	2,013	4,394	3,839	74.4	69.1	1,513	336	686	950
	12 mos.	327	21,218	285	23,134	20,975	3,028	2,537	523	4,254	4,019	1,321	565	7,741	16,737	15,206	72.3	72.5	6,397	1,508	3,066	2,626
Cinn., New Orleans & Tex. Pac.	3 mos.	337	11,254	27	11,917	10,833	1,437	1,267	270	2,830	2,044	1,036	303	3,664	8,872	7,541	74.4	69.6	3,045	1,105	2,169	2,560
	12 mos.	337	46,373	229	48,779	42,572	5,763	4,867	14,52	10,813	9,721	4,079	1,175	14,169	34,214	31,360	70.1	73.7	14,565	4,806	10,309	8,318
Georgia Southern & Florida	3 mos.	395	3,793	—	3,968	3,939	492	348	50	190	169	26	82	1,012	1,917	1,555	48.3	39.5	2,051	563	452	1,116
	12 mos.	395	14,444	5	14,924	11,592	2,042	1,718	168	772	1,097	105	308	3,768	7,478	6,903	50.1	59.6	7,446	1,744	1,500	669
New Orleans & Northwestern	3 mos.	203	2,588	40	2,814	3,034	461	389	104	700	652	277	84	1,129	2,554	2,382	90.8	78.5	260	cr 80	232	226
	12 mos.	203	11,992	244	13,011	11,692	1,841	1,672	386	2,779	2,603	1,108	320	4,498	10,218	9,359	78.5	80.0	2,794	871	1,492	993
Southern Pacific	3 mos.	11,761	205,457	2,675	216,270	202,363	26,935	24,631	2,745	41,817	33,113	13,177	3,841	88,861	174,045	150,432	80.5	74.3	42,225	17,728	12,350	17,226
	12 mos.	11,762	817,864	12,398	860,168	799,309	02,127	90,983	10,875	163,969	156,475	54,111	14,078	343,083	672,008	626,185	78.1	78.3	188,160	75,884	65,161	52,521
Spokane, Portland & Seattle	3 mos.	922	9,493	151	10,256	10,022	2,137	1,496	218	1,785	1,586	391	138	4,159	8,720	7,995	85.0	79.8	1,536	576	416	293
	12 mos.	922	36,572	681	39,679	39,720	6,529	5,564	763	6,468	6,115	1,566	529	16,004	31,402	29,707	79.1	74.8	8,277	3,728	2,142	2,397
Texas & Pacific	3 mos.	1,969	19,650	105	21,581	19,656	3,087	2,623	389	3,831	3,345	1,279	715	8,159	16,717	15,017	77.5	76.4	4,864	1,305	2,079	1,956
	12 mos.	2,004	73,047	575	79,870	74,031	1,480	9,772	1,599	14,436	13,264	5,056	2,726	31,202	63,519	58,236	79.5	78.7	16,351	4,571	6,534	5,296
Toledo, Peoria & Western	3 mos.	239	2,148	—	2,338	2,087	349	310	27	206	188	56	182	821	1,773	1,573	75.9	75.4	564	249	91	132
	12 mos.	239	8,344	—	9,022	8,289	1,172	1,054	89	863	715	218	694	3,156	6,591	6,058	73.1	73.1	2,431	932	628	535
Union Pacific	3 mos.	9,483	146,912	3,220	158,747	151,350	6,947	18,232	1,930	25,809	25,866	12,074	4,565	58,617	116,809	113,109	73.6	74.7	41,939	13,381	27,631	26,074
	12 mos.	9,488	549,963	14,598	595,031	574,020	9,408	65,964	7,234	107,021	106,627	48,119	16,180	220,026	450,001	428,966	75.6	74.7	145,030	61,917	80,239	81,458
Western Maryland	3 mos.	866	11,035	—	11,612	12,088	1,822	1,526	331	2,612	2,680	906	485	4,366	9,933	9,806	85.5	81.1	1,679	1,023	1,587	2,307
	12 mos.	866	45,540	—	47,872	47,078	7,363	6,995	812	11,548	11,340	3,685	1,802	17,541	41,001	39,630	85.7	84.2	6,871	4,259	6,855	7,791
Western Pacific	3 mos.	1,176	17,440	348	18,112	14,650	2,201	2,185	296	3,283	2,956	978	915	6,940	14,753	12,980	81.5	88.6	3,359	1,165	1,686	850
	12 mos.	1,176	64,253	1,901	67,475	59,051	8,662	8,593	1,126	11,981	11,290	3,891	3,498	24,939	54,621	51,163	81.0	86.6	12,853	4,662	6,234	3,999

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UNION PACIFIC RAILROAD

New concepts of locomotive simplicity for reliably moving high speed freight have been introduced in the new U-50C. Working closely with the Union Pacific, General Electric has developed this standard addition to its locomotive line.

The 5000 horsepower, six-axle locomotive features gearing up to 90 mph. It will be powered by two completely independent 12-cylinder engine drive systems.

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The U-50 also incorporates many of the performance proved components and features of the U-33. The simplicity of air cleaning and cooling systems, as well as plug-in type control components, are provided for easier maintenance and more efficient operation.

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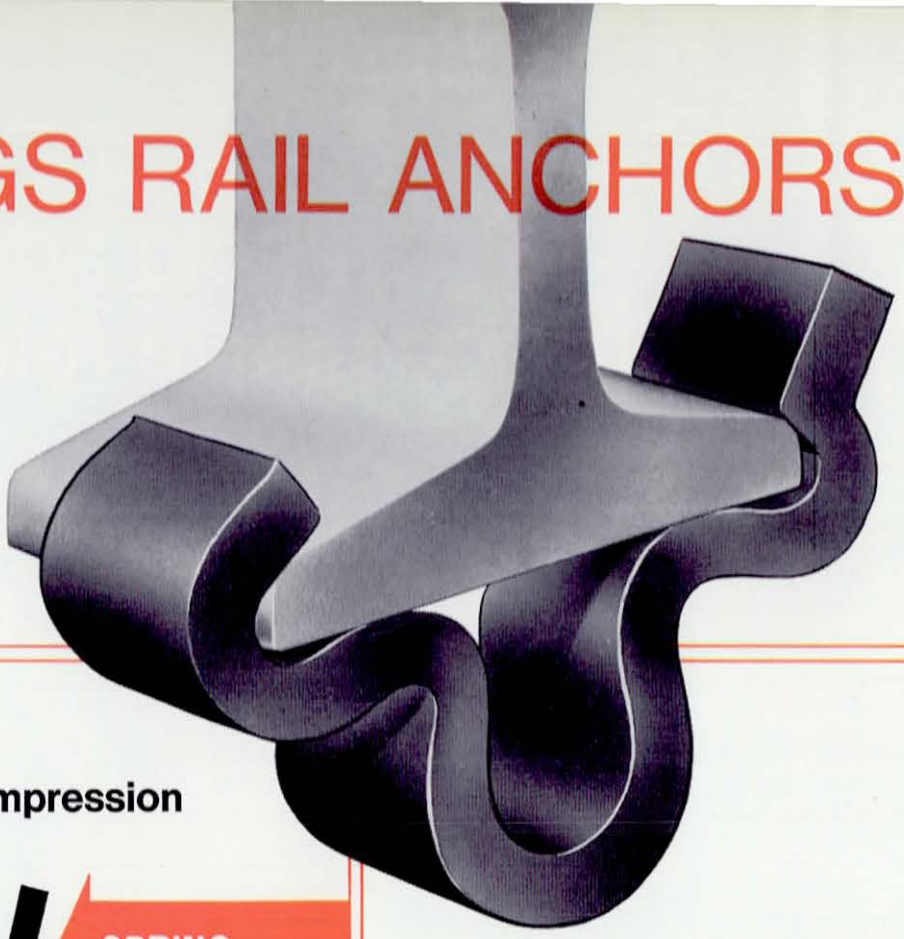

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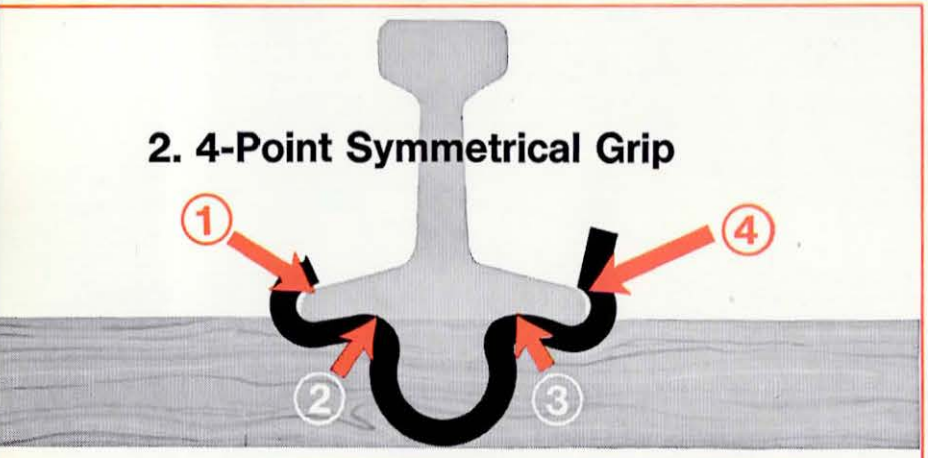
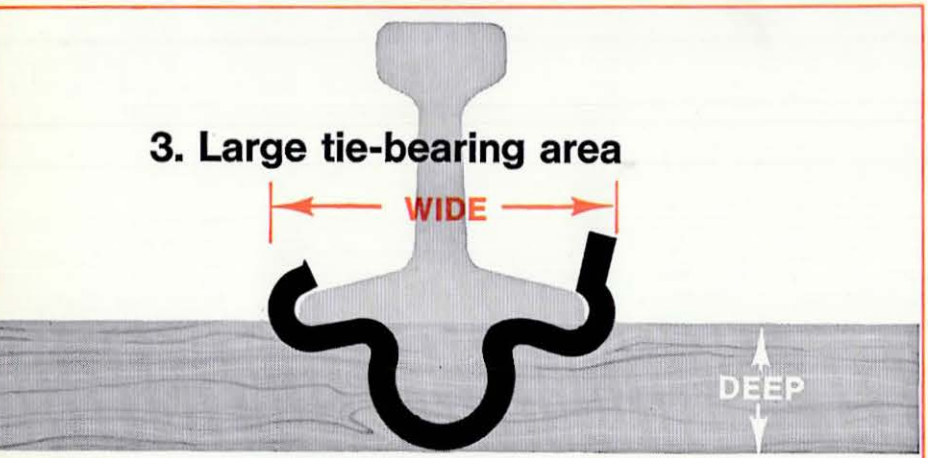


3. Large tie-bearing area



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For welded rail, where great holding power is required, the extra reserve strength of the Woodings Advanced Type Rail Anchor is especially valuable. This is the extreme test of holding power, and here Woodings Anchors excel.

MECHANICAL APPLICATION?

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OTHER ADVANTAGES

High reapplication value without reconditioning; cannot be overdriven; easy to remove and reinstall; self-adjusting to mill variations of rail dimensions.

SPECIFY

Woodings Advanced Type Rail Anchors for holding power and economy.

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rounding the bend to the future

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E. D. Grinnell, Jr.
Frisco

J. E. McCullough
Frisco

L. V. Anderson
Milwaukee

Fritz H. Miller
Milwaukee

(Continued from page 27)

vanced to trainmaster, Central division, Eagle Grove, Iowa.

CHICAGO SOUTH SHORE & SOUTH BEND.—Charles F. Mulrenan, signal and electrical engineer, advanced to assistant chief engineer.

F. H. Hiskes, general traffic manager, promoted to assistant vice president, sales and service.

CLINCHFIELD. — James A. Goforth, assistant chief engineer, Erwin, Tenn., promoted to chief engineer, succeeding **J. M. Salmon, Jr.,** who retired Dec. 9 after nearly 43 years with the Clinchfield and Louisville & Nashville.

H. C. Brown named engineer maintenance of way and structures, Erwin.

FRISCO.—E. D. Grinnell, Jr., vice president and general counsel, appointed vice president-traffic and industrial development, to succeed **E. G. Kreyling, Jr.,** resigned. Mr. Grinnell's successor is **J. E. McCullough,** general solicitor.

C. C. Lane and **H. J. Lovelady** named superintendents, Springfield Terminal, Springfield, Mo., and Kansas City Terminal, Kansas City, Mo., respectively.

ILLINOIS CENTRAL—Edward G. Kreyling, Jr. elected vice president traffic, succeeding **Howard S. Powell,** who will remain with the company as a consultant. Mr. Kreyling was formerly vice president traffic and industrial development, **Frisco.**

JERSEY CENTRAL.—Lester J. Evans appointed freight agent—sales, Newark, N.J.

LONG ISLAND.—John J. McCoy appointed terminal trainmaster and road foreman of engines, Penn Station, New York.

Hank Boerner appointed director of public relations, Jamaica, N.Y., succeeding **William C. Mallery,** who has resigned to join the staff of the **Metropolitan Transportation Authority.** Mr. Boerner was formerly manager of community affairs, American Airlines.

LOUISVILLE & NASHVILLE.—T. Leslie Smith named director of marketing research, Louisville. He was formerly chief traffic officer in charge of marketing, **Atlanta & West Point, Georgia Railroad,** and **Western Railway of Alabama.**

Roger D. Tigar appointed assistant to chief transportation officer, Louisville.

Lawrence E. Best, assistant bridge engineer, retired Dec. 31, 1968.

Jefferson R. Brewster named assistant to comptroller, Louisville. Mr. Brewster had served as comptroller of the former **Tennessee Central,** Nashville.

N. J. Barker, staff assistant-office manager, purchasing department, appointed purchasing agent, to succeed the late **W. F. Shields. T. J. Ballback** replaces Mr. Barker as office manager.

MILWAUKEE.—Dean W. Cooksy, district manager of sales, Davenport, Iowa, transferred to Minneapolis, to replace **Bernard H. Desens,** advanced to assistant regional manager of sales, New York. Mr. Cooksy's

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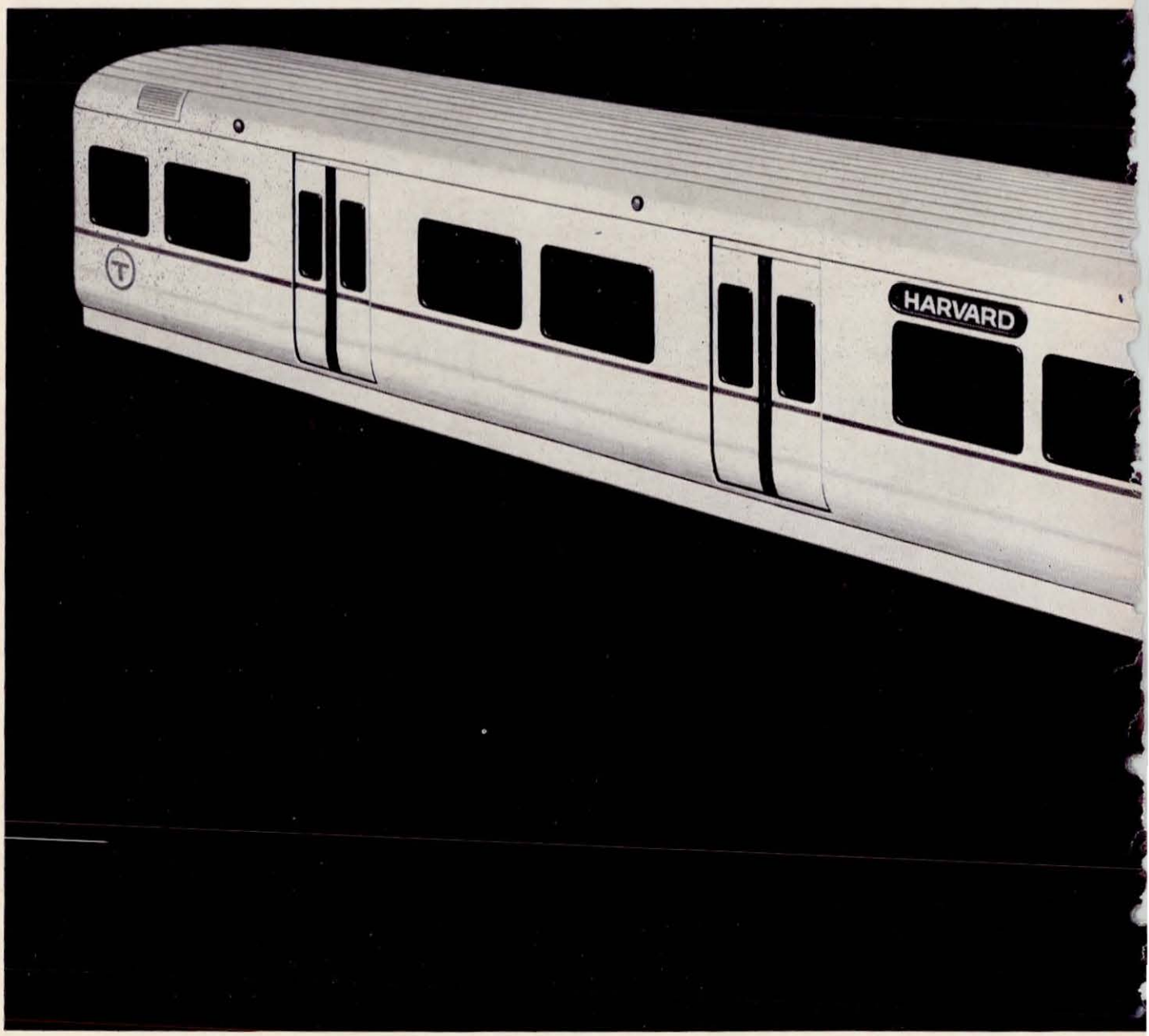

The Massachusetts Bay Transit Authority car, shown below, is one of 76 ordered for the greater Boston area. This car, the first of its kind in the U.S., will feature a gleaming, satin-smooth, brushed aluminum exterior developed jointly by Alcoa and Pullman-Standard specifically for the transit industry.

The warm natural tones of aluminum will offer an added measure of commuter-pleasing beauty to these cars.

Another first by Alcoa is the 66½-ft-long aluminum corrugated roof sheets that span the entire length of the car. Rolled and corrugated at Alcoa's Tennessee Operations, these sheets are the largest ever produced in aluminum. Three of the 39-in.-wide pieces will be joined to form the roof of each car.

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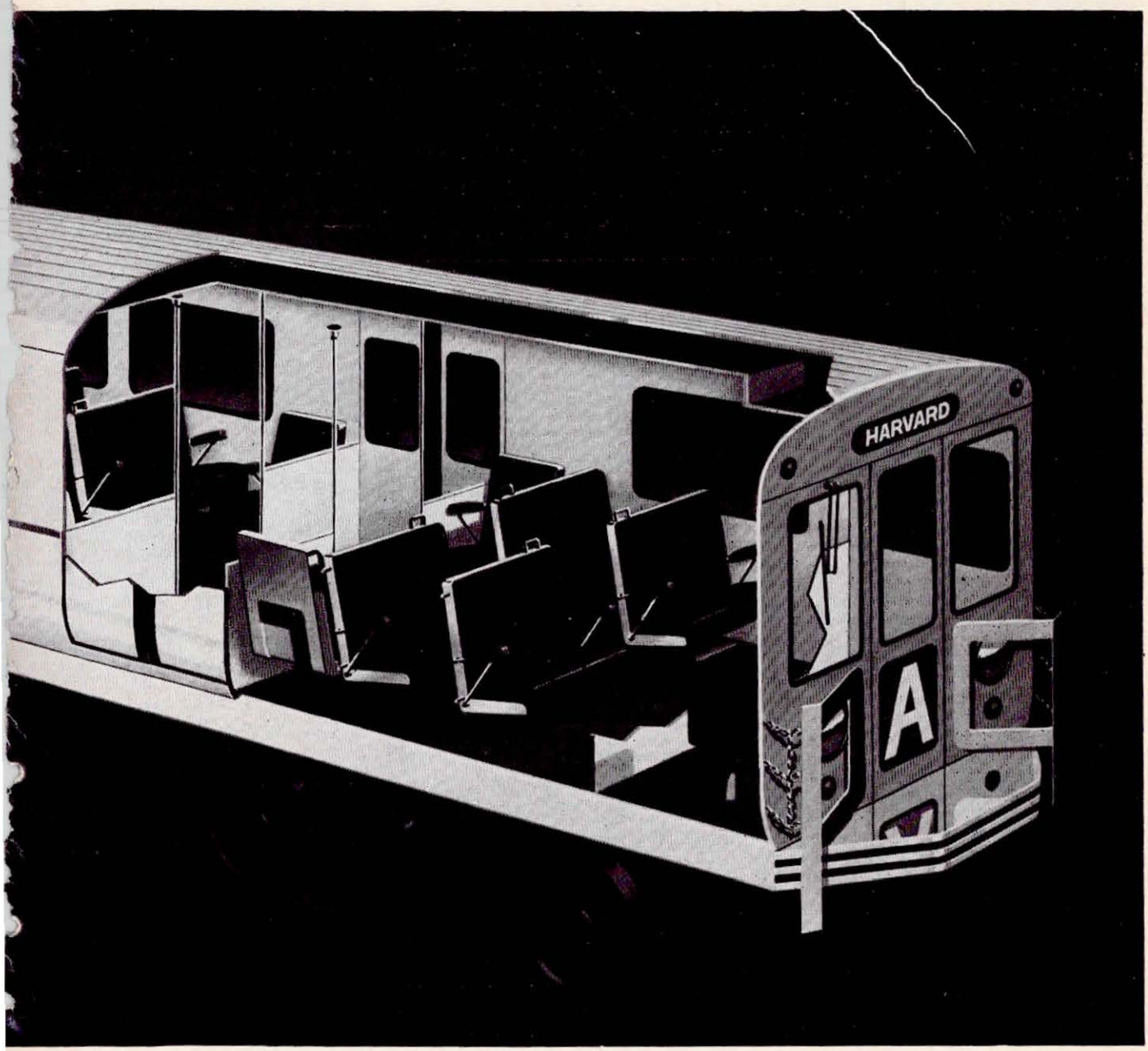

Circle 16 on coupon page 36

successor is **W. R. Bickley,** sales representative, St. Louis.

Gabriel Zawadzki named agricultural agent, Chicago.

John A. Pitel, claim department adjuster, Milwaukee, named district safety engineer there.

L. V. Anderson, system general manager, appointed assistant vice president-operation and general manager, with headquarters continuing in Chicago.

James L. Flowers, traveling sales representative, New Orleans, named district manager of sales, Memphis, Tenn.

Fritz H. Miller, auditor of expenditure, Chicago, named special assistant to vice president-finance and accounting there.

MISSOURI PACIFIC-TEXAS & PACIFIC.—Harvey V. La Monte, Jr., traffic representative, Detroit, appointed general agent.

James T. Lenahan, traffic representative, Davenport, Iowa, advanced to general agent, Fort Smith, Ark.

NORFOLK SOUTHERN.—Major L. Swindell, Jr., assistant to comptroller, appointed director of data processing, with headquarters as before at Raleigh, N.C., succeeding **Harvey R. Liverman,** resigned.

NORTHERN PACIFIC.—Robert S. Macfarlane, chairman of the board, elected chairman emeritus. He will continue to serve as a director.

Philip R. King, traveling freight and passenger agent, Atlanta, Ga., appointed Far East sales manager, Tokyo, Japan.

R. S. Macfarlane
NP

Phillip R. King
NP

ROCK ISLAND.—The foreign commerce department has established four district offices. Named district managers foreign commerce sales in the new offices are: **Gerald T. Slattery, Jr.,** Chicago; **Walter D. Gifford,** New York; **William R. Cook,** Houston; **Gary M. Case,** San Francisco.

Frank G. McGlone named trailer service representative, Des Moines, Iowa. Mr. McGlone was formerly district sales representative, **Chicago & North Western,** Waterloo, Iowa.

SANTA FE.—Michael B. Adams, works manager, Topeka, Kans., shops, named to the new position of assistant general manager—mechanical department, Chicago.

(Continued on page 49)

STUDY CAR MAINTENANCE & INSPECTION in spare time at home

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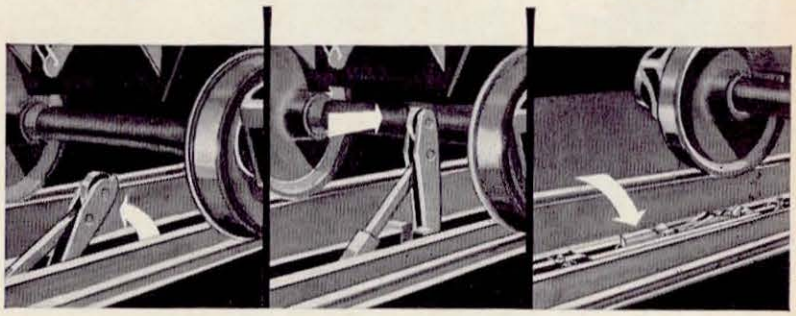

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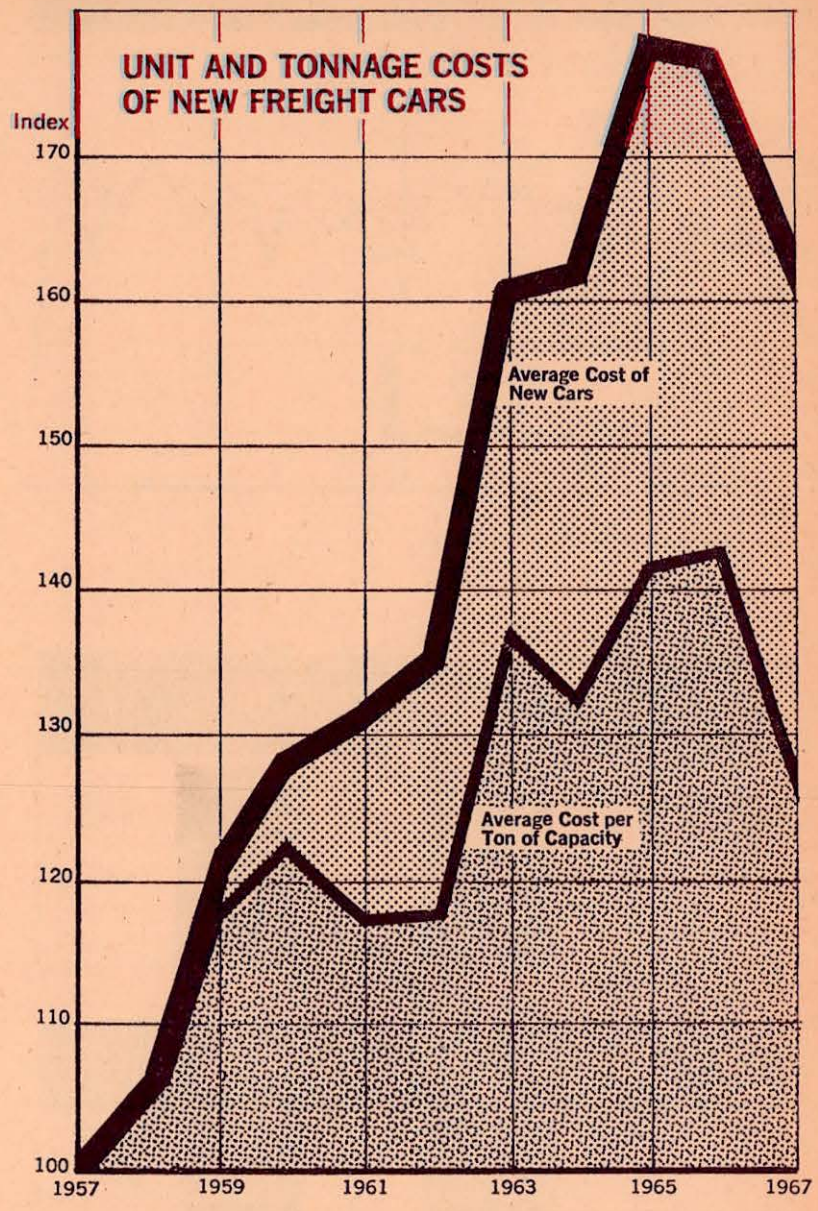


Source: Pullman-Standard

SHIPMENTS OF RAILROAD STEEL PRODUCTS

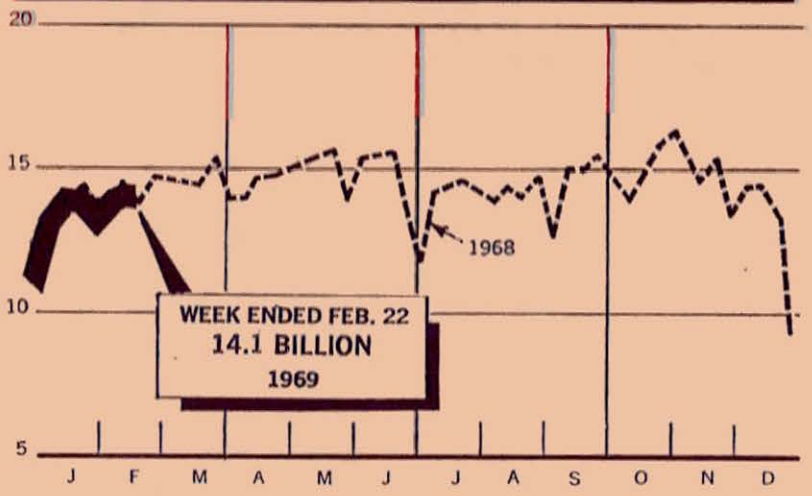
(DECEMBER AND 12 MONTHS 1968)

	NET TONS			
	December	Per Cent Change*	Twelve Months	Per Cent Change*
Rails, trackwork and equipment	75,206	+10.1	959,849	+8.2
Freight and passenger cars and locomotives	172,844	−0.2	2,003,544	−12.3
Street railways and rapid transit systems	5,025	+23.1	81,489	+47.3

*Per cent change compares 1968 periods with like 1967 periods.
Source: American Iron and Steel Institute.

RAIL FREIGHT TRAFFIC TRENDS

BILLION TON-MILES (Estimated)



Source: Association of American Railroads

NEW ORDERS FOR MACHINE TOOLS*

	December 1968 ($000)	December 1967 ($000)	12 mos. 1968 ($000)	12 mos. 1967 ($000)
Metal cutting tools	108,100	88,350	1,077,300	1,134,950
Metal forming tools	32,700	33,250	1,465,200	1,421,600

MACHINE TOOL SHIPMENTS*

	December 1968 ($000)	December 1967 ($000)	12 mos. 1968 ($000)	12 mos. 1967 ($000)
Metal cutting tools	131,100	137,400	1,359,250	1,353,200
Metal forming tools	37,600	39,450	368,250	452,750

*Including foreign and domestic.
Source: National Machine Tool Builders' Association.

Current Statistics

Net Income, Class I roads
Twelve months, 1968 ..... $593,000,000
Twelve months, 1967 ..... $551,000,000

New freight cars on order
Feb. 1, 1969 34,989
Feb. 1, 1968 24,670

New Freight cars delivered
1 mo., 1969 4,482
1 mo., 1968 4,717

Serviceable cars
Jan. 1, 1969 1,382,624
Jan. 1, 1968 1,405,832

MARKET OUTLOOK

CARLOADINGS

Loadings of revenue freight in the week ended March 1 totaled 511,361 cars, the Association of American Railroads announced on March 7. This was an increase of 988 cars, or 0.2%, compared with the previous week; a decrease of 24,107 cars, or 4.5%, compared with the corresponding week last year; and a decrease of 22,998 cars, or 4.3%, compared with the equivalent 1967 week. Ton-miles generated by carloadings in the week ended March 1 are estimated at 14.1 billion, a decrease of 4.1% below corresponding week of 1968, and the same as the 1967 week.

REVENUE FREIGHT CARLOADINGS

Commodity	Feb. 22 week	Preceding week	Per cent change
Grain	20,356	20,420	— 0.3
Farm products	16,704	15,983	+ 4.5
Metallic ores	18,345	17,709	+ 3.6
Coal	95,801	97,637	— 1.9
Crushed stone, gravel & sand	22,088	24,294	— 9.1
Nonmetallic minerals	9,094	9,896	— 8.1
Grain mill products	20,129	20,182	— 0.3
Food & kindred products	23,985	25,382	— 5.5
Primary forest products	24,621	25,765	— 4.4
Lumber & wood products (except furniture)	16,120	15,599	+ 3.3
Pulp, paper & allied products	24,998	24,462	+ 2.2
Chemicals & allied products	30,678	30,730	— 0.2
Petroleum products	12,531	12,762	— 1.8
Stone, clay & glass products	19,250	19,470	— 1.1
Coke	7,855	8,307	— 5.4
Metals & products	29,453	29,455	....
Motor vehicles & equipment	24,055	23,718	+ 1.4
Waste & scrap materials	14,935	14,778	+ 1.1
Forwarder & shipper assn. traffic	7,091	6,565	+ 8.0
All other carloads	70,393	70,408	—0.02
LCL traffic	1,891	2,121	—10.8
Total cars loaded	510,373	515,643	— 1.0
CUMULATIVE TOTAL, EIGHT WEEKS	1969	1968	1967
	3,984,247	3,969,098	4,102,861

PIGGYBACK CARLOADINGS

U. S. piggyback loadings for the week ended Feb. 22 totaled 26,020 cars, carrying 42,004 trailers, compared with 24,064 cars, carrying 39,093 trailers, in the corresponding 1968 week. Loadings for 1969 up to Feb. 22 totaled 193,153 cars, carrying 315,709 trailers, compared with 185,771 cars, carrying 305,667 trailers, in the corresponding period of 1968.

IN CANADA

Cumulative totals	Revenue Cars Loaded	Total Cars Rec'd from Connections
Feb. 7, 1969	356,305	120,728
Feb. 7, 1968	346,176	121,435

FREIGHT-TRAIN CARS

● *Canadian Pacific.*—Placed orders for new freight cars valued at more than $18 million. National Steel Car, Hamilton, will supply 500 box cars for newsprint traffic, 100 mechanical refrigerator cars for dressed meat and frozen foods, and 54 special flatcars equipped to carry containers. These orders are valued at $13.5 million. Marine Industries, Ltd., Sorel, Que., will supply 100 bulkhead-end flat cars for lumber and plywood haulage, and 150 100-ton-capacity gondola cars for heavy steel products. These orders are valued at $4.5 million.

● *Orders & deliveries.*—Orders were placed in January for 7,768 new freight cars compared with 9,356 in December.

FREIGHT TRAIN CARS DELIVERED AND ORDERED IN JANUARY AND BACKLOG OF ORDERS ON FEBRUARY 1, 1969

	January-1969	December-1968	January-1968
Delivered			
Built New by Car Builders	3,853	3,706	3,875
Built New in R.R. Shops	629	830	842
Built New—Total	4,482	4,536	4,717
Rebuilt	719	865	860
TOTAL DELIVERED	**5,201**	**5,401**	**5,577**
Ordered			
To be built New by Car Builders	4,340	7,039	3,414
To be built New in R. R. Shops	3,428	2,317	1,130
To be built New—Total	7,768	9,356	4,544
To be rebuilt	310	1,000	1,196
TOTAL ORDERED	**8,078**	**10,356**	**5,740**
On order and undelivered			
	February 1, 1969	January 1, 1969	February 1, 1968
To be built New by Car Builders	24,990	24,535	13,801
To be built New in R. R. Shops	9,999	7,200	10,869
To be built New—Total	34,989	31,735	24,670
To be rebuilt	4,215	4,624	9,457
TOTAL ON ORDER	**39,204**	**36,359**	**34,127**

LOCOMOTIVES

● *Canadian Pacific.*—Placed a $19-million order with MLW-Worthington, Montreal, for 51 new diesels. Included are 30 3,600-hp units for mainline freight service between Montreal, Toronto and Calgary; and 21 3,000-hp units for unit trains that will haul coal from Natal, B.C., to Roberts Bank, south of Vancouver, for export to Japan.

● *Santa Fe.*—Ordered 90 road-freight diesel-electric units at a cost of about $25 million. EMD will build 25 3,600-hp and 20 2,300-hp units; GE will build 25 3,300-hp and 20 2,250-hp units. Deliveries will begin in second quarter 1969.

● *Union Pacific.*—Ordered 20 5,000-hp, six-axle U50C diesel-electric locomotives from General Electric for high-speed freight service. Twelve units will be delivered this fall; the remaining eight will be shipped in 1970.

YOU OUGHT TO KNOW

Canadian freight rates due to rise April 1

Freight-rate increases ranging from 4% to 8% will become effective in Canada April 1. They will generate additional revenues of approximately $20 million for Canadian railways during the remainder of 1969. The increases will not apply to agreed charges, nor to statutory rates on the movement of export grain and flour.

Opening dates for St. Lawrence Seaway announced

The operating seasons for the different sections of the St. Lawrence Seaway have been announced by the Canadian St. Lawrence Seaway Authority and the American St. Lawrence Seaway Development Corp. The Welland Section, connecting Lake Ontario and Lake Erie, will open April 1 and close Dec. 22. The Montreal-Lake Ontario Section will open April 7 and close Dec. 10. The Canadian canal between Lake Huron and Lake Superior will be open from April 12 to Dec. 15.

New routes for passengers using CUS

Commuters and long-haul passengers using Chicago Union Station are going to get a taste of the kind of habit-disruption which New Yorkers have experienced in recent years at Penn Station and Grand Central. With a 35-story, $55-million building going up on the site of the concourse, passengers will be re-routed over temporary walkways to Milwaukee Road trains at the north end of the layout and to Burlington, Penn Central and Gulf, Mobile & Ohio trains at the south end. Construction at CUS, it's said, will not be so difficult as it was in the two New York projects, the Pan-Am building at Grand Central and the new Madison Square Garden at Penn Station.

Shippers to hear evaluations of conglomerates

Jervis Langdon, chairman and president of the Rock Island, will be a member of a panel addressing the question, "The Transportation Conglomerate—Friend or Foe?" at a meeting next month of the Minneapolis Traffic Club. Also on the Panel will be Charles L. Bergman, vice president, Shearson Hammill & Co., representing the investors' point of view; Robert Alexander, vice president, The Pillsbury Co.; Commissioner Paul J. Tierney of the Interstate Commerce Commission; and Frank C. Rathje, Jr., vice president, Continental Illinois National Bank & Trust Co. of Chicago. The program, sponsored by the education committee of the Traffic Club, will be held April 10 at the Radisson Hotel, Minneapolis.

Penn Central wants to expand interim financing

The Penn Central last week filed an application with the Interstate Commerce Commission seeking authority to sell $50 million worth of commercial paper. Penn Central previously obtained and used ICC authority to sell $100 million worth of commercial paper. It says the increased authority "is being requested pending the arrangement of longer term financing."

Sundberg-Ferar cited for design of "Metropolitan"

The industrial design firm of Sundberg-Ferar, Inc., has won the 1968-69 Design in Steel Award for Best Design of Transportation Equipment. The American Iron and Steel Institute awarded the citation to Sundberg-Ferar for the Long Island Rail Road car, the "Metropolitan." Runner-up in this division was the design staff of the Ford Motor Co. for the 1969 Ford Econoline Van and Club Wagon.

Records set in production of containers

Production of containers in 1968 set records for number of units and total value, according to the Truck Trailer Manufacturers Association. A total of 21,878 containers with a value of $55 million was produced in 1968, surpassing the previous records, set in 1966, for units (11,656) and value ($40.5 million). Average container price rose from $3,460 in 1966 to $4,500 in 1968.

George E. Farosich
SP

Arch J. Chaplin
SP

(Continued from page 44)

D. H. Bristow appointed superintendent of shops, Argentine, Kans. **V. R. Carlson** becomes district supervisor—mechanical department, Newton, Kans.

H. J. Briscoe, superintendent, Eastern Division, Emporia, Kans., transferred to the Los Angeles division, San Bernardino, Calif., to succeed **A. K. Johnson,** who retired Jan. 1, 1969. Mr. Briscoe's successor is **Everett J. Bruce,** superintendent, Kansas City Terminal division, Kansas City, Kans., who in turn is replaced by **F. A. Beauchamp,** superintendent, Chicago Terminal division. **Harold L. Lewis,** assistant superintendent, Middle division, Oklahoma City, Okla., succeeds Mr. Beauchamp. Mr. Lewis' successor is **Robert L. Banion,** trainmaster, Fort Madison, Iowa.

Richard K. Knowlton, general attorney, named assistant general counsel, Chicago.

Cap C. Glover, assistant general storekeeper, Topeka, Kans., named assistant general purchasing agent, Chicago.

SOO LINE.—Named to newly established positions in the accounting department are **William H. Jewett,** who becomes manager of management information systems; **James F. Johnson,** named manager of internal audit, and **William H. Otis,** appointed senior tax accountant. Mr. Jewett was superintendent, quality and budgetary controls, transportation department. Mr. Johnson was formerly manager of administrative services, **Northern Pacific.**

SOUTHERN PACIFIC.—**George E. Farosich,** assistant traffic manager, central district, promoted to assistant to the vice president of traffic. **Arch J. Chaplin,** assistant to the traffic manager, succeeds Mr. Farosich, and in turn is replaced by **William H. Geare,** assistant manager of trailer-flatcar service. SP has consolidated all container, trailer and flatcar service operations into a single department which will be headed by **Thomas A. Fante,** named general manager of trailer-container flatcar services— system. **Lloyd H. Nations** appointed assistant general manager TCF services for SP lines west of El Paso, with headquarters at San Francisco. **John N. Sherbourne** appointed assistant general manager, TFC services, San Francisco, and **H. F. Weddle, Jr.,** assistant general manager, TFC services for SP lines east of El Paso, with headquarters in Houston. Mr. Fante will also continue as vice president and general manager,

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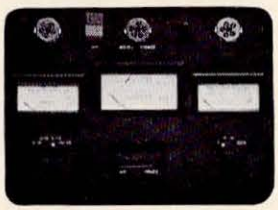

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Gregory S. DeVine
WM

Southern Pacific Marine Transport, Inc.

Fred A. Baker, general bridge inspector, retired Dec. 31, 1968, after more than 47 years' service.

F. A. Arnerich and **E. G. Suelflohn** appointed to the new positions of assistants to general manager, System Management Services. **T. K. Lloyd** named assistant manager-systems services, to succeed Mr. Arnerich. Mr. Suelflohn's successor as manager, data processing is **J. M. Graziani. W. J. Zigmant** named assistant manager, data processing. **R. B. Carlson** appointed to the newly established position of assistant manager, analytic services.

UNION PACIFIC CORP.—**Frank E. Barnett,** chief executive officer, **Union Pacific Railroad,** elected chairman of the board and chief executive officer of the new holding company, **Union Pacific Corp.** (RA, Feb. 10, p. 9). **James H. Evans,** formerly chairman and chief executive officer, **Seamen's Bank for Savings,** New York, elected president. **Elbridge T. Gerry,** partner, **Brown Brothers Harriman & Co.,** elected chairman of the executive committee. **E. Roland Harriman** will be honorary chairman of the corporation and the railroad, and will continue as a director and member of the executive committee of both companies and as chairman of the board of trustees, **Union Pacific Railroad Foundation. Edd H. Bailey** continues as president of the railroad.

WESTERN MARYLAND,—**Gregory S. DeVine,** president and chief executive officer, **Chesapeake & Ohio-Baltimore & Ohio,** elected chairman of the board of the WM which is controlled by the C&O-B&O.

SUPPLY TRADE

Corwin D. Denney, president of **Automation Industries, Inc.,** has announced the formation of **Sperry Rail Service of Australia.** Along with **Nondestructive Testing Laboratories (S.A.) Pty., Ltd.,** which was acquired in October 1968, the new firm will be operated as a division of **Automation Sperry Pty., Ltd.,** with headquarters in Rydalmere, N. S. W. The addition of Sperry Rail Service of Australia will provide Australian industry with the complete scope of nondestructive testing services and equipment now available in North America from the Materials Evaluation Group of Automation Industries, said Denney.

Due to territorial and climatic conditions to be encountered in Australia, along with the requirement to provide adequate space for the detection equipment and operating supplies, the rail detector car will be an air-conditioned, diesel-powered transit bus-equipped with retractible railroad guide wheels for proper on-rail use, according to the announcement. The inspection instrumentation will provide ultrasonic examination of both rails simultaneously. A continuous chart recorder will provide a permanent record of the ultrasonic inspection.

The first user of the new Australian rail service will be Hamersley Iron Pty., Ltd., Dampier, W. A. The company has just completed a three-year agreement for the periodic testing of approximately 200 miles of rail over which the company ships ore to Port Dampier. This operation is expected to start mid-1969, it was said.

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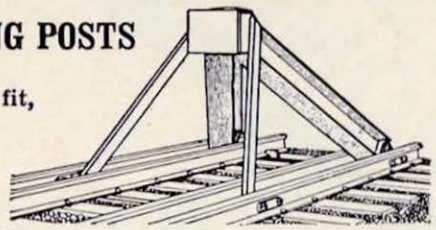

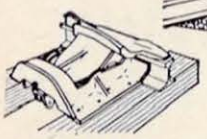

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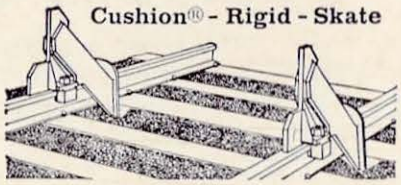

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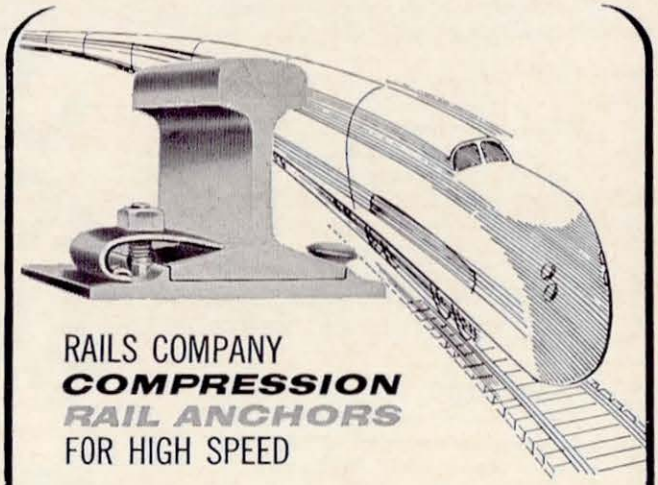

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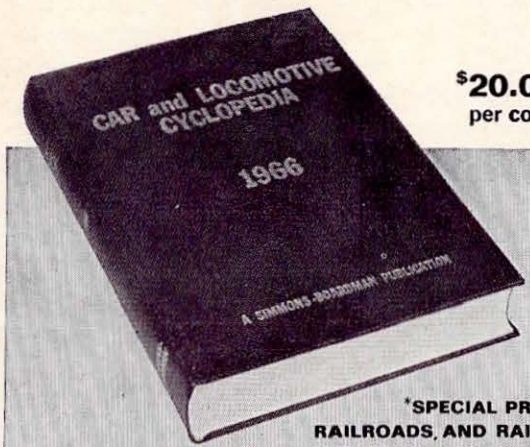

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VIEWPOINT

How can engineering officers get the authority they need?

On the average railroad, almost 15% of operating revenue is spent as operating expense by the engineering and maintenance-of-way department. Add to this the amount that goes for improvements and betterments to the fixed properties, and you find that engineering and M/W people are responsible for dispensing each year a pretty hefty share of the total railroad outgo.

This makes the engineers big spenders. As things stand, it also makes for a situation in which management has a handy place where it can cut expenses if it feels cuts are necessary because of declining business. There must have been times when at least some engineers entertained the thought, perhaps only fleetingly, that the money allotted for maintenance really had two functions—one to make repairs to the property and the other to serve as a sort of financial buffer during times of poor business.

So, the engineers are big spenders—but not in a profligate sense, as is so often meant when this term is used. A basic tenet of engineering training is that economy with safety should prevail in the design and maintenance of any engineering structure—and that includes railroad track. When an engineer makes a request for a specified amount of money to carry out a project—whether it's building a bridge or maintaining a thousand miles of railroad track—his understanding is that the amount specified is the least he believes will do the job, with safety. If the specified amount is later cut back, a fair assumption is that safety will be impaired.

Still, the practice of using maintenance expenditures as a financial buffer seems to be accepted as a fixed part of the railroad picture. True, a management representative here and there has given signs that traditional thinking governing M/W expenditures may be in for an overhauling on individual roads, but there are no indications that management generally is about to enhance anything but the policies that have been in force for so long.

RESPONSIBILITY—BUT NO AUTHORITY

The fact is that these policies have not worked. Engineers have been given the responsibility for maintaining the properties but not the authority to determine the amount of work to be done. That authority rests with management. If the engineers are not allowed to do the amount of work on the track and bridges they think is necessary, then a safe assumption is that not enough work is being done. But if a derailment occurs that is determined to result from some weakness in the track, the finger of responsibility is levelled at the engineers.

Since engineers are responsible for spending such a large fraction of railroad revenues and since they are held responsible for the safety of the properties maintained, perhaps they should be given more authority—or at least a louder voice—in determining the amount to be spent.

One possibility—now being followed-up in some instances—is to take the top engineering officer into the corporate family of policy makers. Certainly this could be a step in the right direction, provided he is given more than token authority in determining policies that govern spending for property maintenance.

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